

# 3



## GERMANTOWN CAMPUS



# 3.1 CAMPUS BACKGROUND INFORMATION

## 3.1.1 Introduction

The College began offering classes in the up-county in September 1975, initially holding them in high school classrooms. Three years later in 1978, the Germantown Campus opened in its present location in the newly constructed Science & Applied Studies, and Humanities & Social Sciences buildings. The Germantown Campus is the College’s newest campus and is located just 30 miles north of Washington, D.C. The Campus has continued to grow since its origin and today serves over 7,500 full-time and part-time day, evening and weekend students.

Building on the success of the biotechnology instructional programs, the Campus has begun sowing the seeds of the next generation of scientists and laboratory researchers through a collaborative project to construct a life sciences park, a County operated technology incubator and a Bioscience Education Center. In 2014 the new Holy Cross Germantown Hospital opened on campus and serves as the anchor tenant for the Pinkney Innovation Complex for Science and Technology at Montgomery College (PIC MC). The faculty and staff work closely with the businesses on the I-270 high-tech corridor to create mutually beneficial student learning opportunities. In addition, the campus hosts a cybersecurity/networking program and is a founding member of CyberWatch, a consortium of over 70 colleges and universities, preparing skilled cybersecurity/networking technicians. These visionary initiatives and projects have laid a foundation to ensure that the local biotechnology industry continues to thrive to the benefit of the students and the greater community in meeting local and state needs.

## 3.1.2 Institutional Characteristics

The Germantown Campus is the most suburban of the three campuses and has the smallest student body, but only slightly smaller than that of the Takoma Park/Silver Spring Campus. However, it is anticipated that the Germantown Campus is positioned to potentially grow at a considerably faster rate over the next decade in comparison to the two other campuses.

Currently, the Campus is diverse with nonwhites representing 68.2% of the student body. The mean age of a Germantown student is 25.5 years with traditional age students (18-20 years of age) still leading all age groups comprising 35.0% of the total student enrollment. Approximately 94% of all students reside in Montgomery County, which is the highest percentage of the three College campuses. In addition, the Campus has the second highest percentage of female enrollment at 54.3% behind Takoma Park/Silver Spring. Figures 3.01 and 3.02 provide an overview and snapshot of the Germantown Campus student body as it relates to Enrollment Status and Day/Evening Students.

FIGURE 3.01 GERMANTOWN CAMPUS ENROLLMENT STATUS, FALL 2013

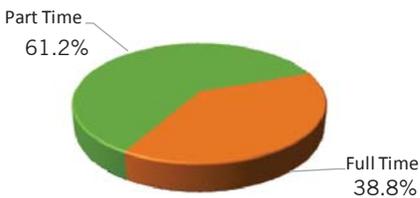


FIGURE 3.02 GERMANTOWN CAMPUS DAY AND EVENING STUDENTS, FALL 2013



The Campus' intercollegiate athletic program sponsors a men's baseball team. Campus-based central administration and student support services include the library, information technology support, admissions and registration, financial aid, cashiering, physical plant, and auxiliary services. The latter includes the Child Care Center, book store, and food services.

The Germantown Campus has always made a special commitment to community use of its library, swimming pool, and other College facilities for club, association, or civic activities. This commitment is taking on a new and dynamic perspective as the campus envisions having a "world class" bio-technology program attracting students, faculty, sponsors, and corporate partners from around the world and serving the needs of the bio-technology industry in Montgomery County. The College commissioned two planning studies to create a framework for the development of life sciences programs and bio-technology park. In October 2014, Montgomery College published the Strategic Business Plan, Partnership Program and Integrated Campus for Resident Partners. It guides the planning and physical development of the Pinkney Innovation Complex for Science and Technology at Montgomery College (PIC MC). In May 2015, Montgomery College published another master plan, The College Town Plan. Like the plan for the Germantown campus, it too creates a framework for development. The College Town Plan focuses on all three Montgomery College Campuses, and it develops strategies for integrating each of the campuses into the surrounding communities. Part of this vision entails providing a "one-stop" shop for industry looking for employee training and for students seeking an excellent education or training in specific science and technology skills. Both non-credit and credit programs through the baccalaureate degree and beyond are expected to be offered by the College. In August of 2014, the Bioscience Education Center opened. This new facility supports both the College's instructional and workforce development programs.

### **3.1.3 Comparison with 2006-16 FMP**

The 2006-2016 Facilities Master Plan focused campus development on the north with the relocation of the future Student Services Center to a site alongside the new northern entrance of the Campus. The 2006-2016 Facilities Master Plan also added two new building on the Campus, the Goldenrod Building located on an adjacent parcel that was purchased by the College in 2011, and a future Art & Humanities Building to be located along the north edge of the Campus. The 2006-2016 Facilities Master Plan indicated an approximately 40-acre bioscience and technology business park for the Germantown Campus (referred to then as the Life Sciences Park.) The updated 2013-2023 Facilities Master Plan continues to call for more compact campus development of new buildings on the northern edge of the Campus. This approach will preserve portions of the Campus to the southeast for long-term development opportunities for the Pinkney Innovation Complex for Science and Technology at Montgomery College (PIC MC - the current name for the Life Sciences Park). Overall the 2006-2016 Facilities Master Plan took into account Montgomery County's plan for supporting the development of the PIC MC, providing for the extension of Observation Drive along and through the western side of the Campus, providing new campus entrances to the north and south, and ensuring the preservation of a significant forest conservation area that includes both the Gunners Branch stream valley and the forest stand on the west side of the Campus. In addition, the 2006-2016 Facilities Master Plan provided for compliance with the new State regulations for storm water management with the provision of a pond to be located at the southern end of the Campus that could also serve the PIC MC.

Since the 2006-16 Facilities Master Plan was approved, several projects have been completed or are in progress at the Germantown Campus. These include completion of the new Bioscience Education Center, the Child Care building, and the Greenhouse. The construction of Parking Lot 4 and the extension Observation Drive down to Middlebrook Road are also complete. In 2014, Holy Cross Germantown Hospital opened, completing the first component of the Pinkney Innovation Complex for Science and Technology at Montgomery College (PIC MC). Both the 2006-2016 and 2013-2023 Facilities Master Plans proposed new projects on the Germantown

Campus, adding to the Campus net assignable square foot space inventory and responding to the ten year space deficiencies of each plan. The near term projects in both plans include new buildings – Student Services Center, Library Learning Commons, Arts and Communications Building and additional Science and Math Buildings – and renovations to Physical Education, Science & Applied Studies, Humanities & Social Sciences, High Technology & Science Center.

### 3.1.4 Academic Programs

Montgomery College is authorized by the Maryland Higher Education Commission to offer five degrees: the Associate of Arts (A.A.), the Associate of Science (A.S.), the Associate of Arts in Teaching (A.A.T.), the Associate of Fine Arts (A.F.A.) for students wanting to transfer to baccalaureate programs and the Associate of Applied Science (A.A.S.) for those seeking immediate employment. The College also awards certificates (Cert) that focus on the development of technical skills, as well as letters of recognition (L of R) for non-degree seeking students who satisfactorily complete certain courses that teach focused skills and competencies.

In addition to general education and honors courses, the Germantown Campus offers fifty (50) different degree programs, twenty-four (24) certificate programs, and six (6) letter of recognition programs. Table 3.01 inventories the academic programs on the Campus. Academic programs uniquely offered at the Germantown Campus include the A.A.S degree and certificate in Biotechnology, the certificate in Technical Writing, the A.A.S degree and certificate in Landscape Technology and an A.A.S. degree and certificate in Cybersecurity. Further, the A.A.S. degree program in Biotechnology and the certificate program in Technical Writing are approved as State wide programs. These State wide programs are available to students from other geographic areas where the local community college does not offer the same program. The non-credit programs offered on the Germantown Campus by Workforce Development & Continuing Education are not included in these counts.

The Germantown Campus, augmented by the PIC MC and the Montgomery County Business Innovation Center, is poised to play a critical role in addressing workforce shortages in Science, Technology, Engineering and Mathematics (STEM) and health care fields as well as the state wide need for teachers in related subject areas, while simultaneously providing students unique and vital opportunities for applied and experiential learning.

From its inception, the PIC MC has been seen as a way to ensure that the supply of well trained and educated workers in Life Science and STEM fields meets the growing demand for these skills in Montgomery County. The integration of PIC MC with the academic campus will facilitate the alignment of academic programs with workforce needs. Industry, viewed as an extension of the academic program, becomes a true partner, defining competencies, articulating standards, and providing relevance to the curriculum.

The mutual benefits of aligning academic programs with the requirements of the industry for which course work and programs are preparing students have been cited for the past decade. The rapid pace at which technological advances occur challenges academic curricula to stay current with the best workplace practices. Only after a practice is refined does it become part of the curriculum. By integrating academics and the workplace, faculty stay current and the curriculum relevant; students have the opportunity for real, experiential learning, often with industry mentors; members of industry may teach, guest-lecture or otherwise actively participate in development and evaluation of curricula; clear career pathways are established for students and competent, trained workers are career ready. Due to the demand for qualified workers in the Life Science and STEM fields, the synergy of academic and industry collaboration continues to be a critical factor to student success.

TABLE 3.01  
GERMANTOWN CAMPUS ACADEMIC PROGRAMS (By Credential and Campus) 2015-2016

Program Area	AA	AS	AAT	AFA	AAS	Cert	L of R
Accounting						1GR	
American Sign Language	1R					1R	
Applied Geography					1R	2R	
Architectural & Construction Tech					2R	1R	1R
Art	2GRT			1GRT			
Automotive Technology					1R	4R	
Biotechnology					1G	2G	
Broadcast Media Production					2R	4R	
Building Trades Technology					3R	4R	4R
Business	1GRT						
Communication Studies	1GRT						
Computer Application					2GRT	2GRT	
Computer Gaming & Simulation	3 GRT						
Comp Publishing & Printing Mgmt							1GRT
Computer Science & Technologies	2GRT					1GRT	
Criminal Justice					1R		
Cybersecurity					1G	2G	
Diagnostic Medical Sonography					1T		
Digital Media and Web Technology					1GRT		
Education			7GRT		1R	1GRT	
Emergency Preparedness Management		1RT				1RT	
Engineering Science					12GRT		
Ethnic Social Studies						1GRT	1GRT
Fire Science & Emergency Services					3RT	4R/1T	1RT
General Studies	4GRT						
Graphic Design	4R/2GT			1GRT		3R/2GT	
Health Enhancement, Ex Sci & PE	3R					1R	
Health Information Management					1T		1T
Hospitality Management					3R	3R	3R
Interior Design	1R				2R	3R	
International Studies	1GRT						
Landscape Technology					1G	1G	
Management						1GRT	1GRT
Mental Health Associate					1T		
Music	1R					1R	
Network & Wireless Technologies					1GRT	3G	
Nursing		1T					

Paralegal Studies						1GT	1GT	1GT
Photography						1R	4R	1GRT
Physical Therapist Assistant						1T		
Polysomnography							1T	
Radiologic (X-Ray) Technology						1T		
Science					5GRT			
Surgical Technology						1T		
Technical Writing							1G	
Theatre					3R			
Transfer Studies								1GRT
Web Careers								5R/3GT
Women's Studies								1GRT

Degrees, Certificates, and Letters of Recognition: AA-Associates of Arts; AS-Associate of Science; AAS-Associates of Applied Science; AAT-Associates of Arts in Teaching; AFA-Associate of Fine Arts; Cert-Certificate; and L of R-Letter of Recognition.

Campus: T-Takoma Park/Silver Spring Campus; R-Rockville Campus; and G-Germantown Campus.

Source: Montgomery College 2015-2016 Catalog

TABLE 3.02  
GERMANTOWN CAMPUS CREDIT AND CONTACT HOURS, FALL 2013 AND 2023

Day, On-Line, and Total Credit Hours													
	2013 Day SCH	2013 On-Line SCH	2013 Total SCH	2013 % Day SCH	2013 % On-Line SCH	2023 Day SCH	10 yr % Chg	2023 On-Line SCH	10 yr % Chg	2023 Total SCH	10 yr % Chg	2023 % Day SCH	2023 % On-Line SCH
Germantown	31,547	5,435	36,982	85%	15%	45,743	45%	7,881	45%	53,624	45%	85%	15%
Collegewide	167,123	11,465	178,588	94%	6%	210,241	26%	14,423	26%	224,664	26%	94%	6%
Day Contact Hour (WSCH) to Day Credit Hour (SCH) Ratio													
	2013 WSCH	2013 SCH	2013 WSCH / SCH	2023 WSCH	10 yr % Chg	2023 SCH	10 yr % Chg	2023 WSCH / SCH	10 yr % Chg				
Germantown	51,031	36,982	138	7,402	50%	53,624	45%	142	3%				
Collegewide	260,704	178,588	146	314,515	21%	224,664	26%	140	-4%				
Day Lecture and Lab Contact Hour													
	2013 Day Lecture WSCH	2013 Day Lab WSCH	2013 Day Total WSCH	2013 Day % Lab WSCH	2023 Day Lecture WSCH	10 yr % Chg	2023 Day Lab WSCH	10 yr % Chg	2023 Day Total WSCH	10 yr % Chg	2023 Day % Lab WSCH		
Germantown	30,594	20,437	51,031	40%	46,564	52%	29,838	46%	76,402	50%	39%		
Collegewide	161,296	99,408	260,704	38%	192,569	19%	121,946	23%	314,515	21%	39%		

Source: Montgomery College

## Experiential Learning Opportunities

Montgomery College will expand its existing programs and offerings, based on regional workforce needs and student interest, and offer all of the Life Science and STEM programs at the Germantown Campus. Industry collaboration generates internships, research opportunities, clinical rotations, co-op experiences, and volunteer opportunities for students in these programs. Virtual and simulation labs provide increasing flexibility for teaching science courses. The planned physical expansion will permit academic program development that incorporates, from the outset, best practices in teaching and learning. For example, the Bioscience Education Center will offer students the opportunity to learn in a bio-manufacturing suite that closely models those found in the biotechnology industry. A School of Engineering proposal is under consideration, and Engineering offerings have already been enhanced at the campus. Further additions in the area of Bioengineering and Biomedical Engineering may be considered.

The Campus' vision is to provide students with experiential learning opportunities, including undergraduate research and internship experiences that are critical and often required in STEM education. The connection between the classroom and the workplace is forged through internships, co-op programs, and student research. The benefits of experiential learning and internships are many and include:

- Students gaining valuable practical work experience and exposure to the workplace;
- Independent, critical thinking is learned;
- Written and oral communication skills are developed;
- Curriculum is reinforced and seen as relevant and applicable;
- Employers have access to motivated and knowledgeable student workers;
- Students clarify their interests and goals;
- Internships are often a pathway to a job.

The College considers the PIC MC integral to the academic mission, particularly in providing students with skills to compete in the emerging global, knowledge-based economy. Potential tenants will be selected on the basis of their ability to provide experiential learning opportunities for our students in the areas discussed above or to act as a catalyst in bringing other tenants who could provide these opportunities.

College academic and workforce development programs have also integrated environmental and sustainability concepts into their curricula and both credit and non-credit sustainability courses are offered. For this reason, the College has become a resource for the community in providing educational opportunities for those wanting to transition to the “green collar” economy. The College is also partnering with other state and county agencies and is the educator for “green business” certification programs and other environmental initiatives. Volunteer activities such as faculty and staff participation in professional societies and the College’s Speakers Bureau also extend the College’s influence into the community.

Table 3.01 provides an inventory of all academic credit programs offered at the Germantown Campus.

Educational programs at Germantown are expected to generate 53,624 weekly student contact hours (WSCH) in 2023, an increase of 45% over fall 2013 and with 85% being taught during the day. Delivery of Campus programs is expected to change over the next decade. Distance learning alternatives will be more available as options, including both entire and partial course delivery. However, the percentage of student credit hours (SCH) taught entirely on-line at Germantown is projected to remain stable at 15% over the ten year planning period. Table 3.02 provides a summary of contact and credit hours for the Campus and the College for 2013 and 2023 and Table 3.03 provides a summary of credit hours by division from 2010-2013 and projected for 2023.

These instructional delivery changes, together with the increases projected for enrollment, can be expected to have impact on Germantown's contact hour productions. The ratio of weekly student contact hours (WSCH) to student credit hours (SCH), which shows the extent to which time scheduled in class is greater than the credit hours earned, is expected to increase at Germantown from 1.38 in 2013 to 1.42 in 2023, primarily because of increased availability of labs and lab courses.

The College has also made significant and substantial investments in its classroom environments to incorporate smart instructional technology and to provide and support technology-based learning centers. In addition to these improvements, the College must also prepare to address other changes in pedagogy, including increased instructional use of specialized learning environments and the development of instructional space that is configured and equipped to support collaborative and group based learning.

TABLE 3.03 GERMANTOWN CAMPUS TOTAL CREDIT HOURS BY DIVISION, FALL 2010-2013 AND 2023

	2010	2011	2012	2013	5yr % Chg	2023	10 yr % Chg
<b>Student Dev</b>	659	641	782	626	-5%	908	45%
<b>Honors/Other</b>	68	64	31	36	-47%	52	45%
<b>BSMT</b>	23,248	23,981	24,376	23,258	0%	33,724	45%
<b>HSSE</b>	24,839	25,093	27,359	26,402	6%	38,283	45%
<b>Germantown</b>	48,814	49,779	52,548	50,322	3%	72,967	45%

Source: Montgomery College

### 3.1.5 Enrollment Projections

Over the past five-year period, headcount enrollment has increased 24%, from 6,009 students in 2008 to 7,441 in 2013. The rate of enrollment growth over the next decade is expected to increase by 27% resulting in a projected headcount of 9,423 students at the Campus by 2023. Commensurate with headcount growth during this period will be an increase in student credit hours (SCH) as discussed in the previous section. Table 3.03 provides a summary of the historical, current and projected headcount and the corresponding Full Time Equivalent (FTE) student calculation for the Campus.

TABLE 3.04 GERMANTOWN CAMPUS ENROLLMENT STATISTICS, FALL 2008-2013 AND 2023

	2008	2009	2010	2011	2012	2013	5yr % Chg	2023	10yr % Chg
<b>Headcount</b>	6,009	6,571	6,819	7,154	7,739	7,441	24%	9,423	27%
<b>FTE Students</b>	2,775	2,896	3,304	3,372	3,503	3,486	26%	4,590	32%

Source: Montgomery College

### 3.1.6 Faculty and Staff

Faculty supporting the Campus will increase by 14%, from 151 FTE faculty to 171 through 2023. The number of full-time faculty will increase by 8 positions or 10%, while the number of part-time faculty will increase by 50 positions or 18% over the planning period. Growth in faculty positions is evenly distributed across instructional divisions with very modest growth in Student Development. The planned part-time faculty growth will continue to add to the existing space deficit in office and conference space for part time faculty, if not addressed. Table 3.05 provides a summary of current and projected faculty by division for 2013 and 2023.

The Germantown Campus is anticipating an increase in full-time and part-time staff through 2023. In total, the number of Campus staff is expected to increase by 10 FTE positions, which represents a 5% increase. Table 3.06 provides a summary of current and projected staff for 2013 and 2023.

TABLE 3.05 GERMANTOWN CAMPUS FACULTY POSITIONS BY DIVISION, 2013 AND 2023

	2013 FT	2013 PT	2013 FTE	2023 FT	10 Yr # % Chg	2023 PT	10 Yr # % Chg	2023 FTE	10 Yr # % Chg
<b>Student Development</b>	0	18	5	0	0	21	3	5	1
					0%		17%		17%
<b>BSMT</b>	39	116	68	43	4	137	21	77	9
					10%		18%		14%
<b>HSSE</b>	43	140	78	47	4	166	26	89	11
					9%		19%		13%
<b>Germantown</b>	82	274	151	90	8	324	50	171	21
					10%		18%		14%

Source: Montgomery College

TABLE 3.06 GERMANTOWN CAMPUS STAFF POSITIONS, 2013 AND 2023

	2013 FT	2013 PT	2013 FTE	2023 FT	10 Yr # % Chg	2023 PT	10 Yr # % Chg	2023 FTE	10 Yr # % Chg
<b>Administrative</b>	11	0	11	14	3	0	0	14	0
					27%		0%		0%
<b>Other Professional</b>	54	17	58	60	6	20	3	65	5
					11%		18%		8%
<b>Clerical and Secretarial</b>	33	6	35	37	4	9	3	39	2
					12%		50%		6%
<b>Technical and Paraprofessional</b>	47	4	48	52	5	7	3	54	2
					11%		75%		3%
<b>Skilled Crafts</b>	12	0	12	13	1	0	0	13	0
					8%		0%		0%
<b>Service and Maintenance</b>	33	2	34	37	4	5	3	38	1
					12%		150%		3%
<b>Germantown</b>	190	29	197	213	23	41	12	223	10
					12%		41%		5%

Source: Montgomery College

**FIGURE 3.03 CAMPUS CONTEXT**



## 3.2 EXISTING SITE CONDITIONS and ANALYSIS

### 3.2.1 Context and Setting

#### Context

The Germantown Campus was established in 1978 on 208 wooded acres. The property is bounded by MD-118 (Germantown Road) to the north, I-270 to the west, and Middlebrook Road to the south. Multi-family residential properties bound the Campus to the east with MD-355 (Frederick Road) to their east and connecting to MD-118 and Middlebrook Road to the north and south, respectively. In addition, three existing commercial buildings and a hotel are located to the west of the Campus and a corporate research facility (Hughes Network) is to the southwest.

Along the eastern edge of the Campus there is a stream and a narrow wooded buffer to the multi-family residential development. The south and southwest of the parcel consists of sloping fields and wooded areas, and the site of the PIC MC. In 2014, Holy Cross Germantown Hospital opened on one of the south parcels along Observation Drive. It is the first development within the planned PIC MC. The complex includes the main hospital building, garage, and a professional office building that will house physician offices and research laboratories. The remaining land between the hospital and the campus will house the PIC MC. The park will contain space for research laboratories, office and retail.

#### Setting

The Germantown Campus is characterized by the combination of a relatively compact composition of academic buildings organized around a quadrangle, the sloping wooded topography, and sweeping vistas to the southeast. The topography of the campus is generally in the range of 10% or greater. The ground drops nearly 200 feet from the highest point of the site (existing academic quadrangle) to the lowest point along Middlebrook Road to the south. This sharp drop helps to define the character and afford views, but also creates a challenge to maintaining strong connections between buildings as the campus expands.

The three original buildings, Humanities & Social Sciences (HS), Science and Applied Studies Building (SA) and Physical Education Building (PG) share a common architectural vocabulary. All three buildings are one to two stories in height, with strong horizontal elements of ribbon windows or crisp, white concrete planes. The buildings are oriented toward the quadrangle.

The High Technology & Science Center (HT), built in 1996, shares some of the horizontal elements of the original buildings, while adding architectural elements like towers to mark the entries, articulation of the facades and the warmth and scale of buff colored brick. The building is also four stories in height on an otherwise low-scale campus.

The College purchased a two-story building on Goldenrod Lane that was originally designed as an office building. It is clad with a brown brick and dark tinted windows. The building has been renovated and serves as the Paul Peck Academic and Innovation Building. It is physically separated from the rest of the Campus by the main parking lots and is oriented with its service areas toward the Campus. (See Figure 3.13 Building Massing and Materials).

In September 2014, the Bioscience Education Center (BE) opened. It is sited immediately south of the SA on the highest point of campus. It forms the western edge of a new quad south of the original quad. To the east of the Biology Education Center are sweepings views of the new Holy Cross Germantown Hospital and south towards Rockville. The BE is a modern steel frame building clad in iron-spot brick, precast concrete accents and light grey metal panels. Ribbon windows set with the horizontal arrangement of the panels mimic the architectural

**FIGURE 3.04 CAMPUS SETTING**

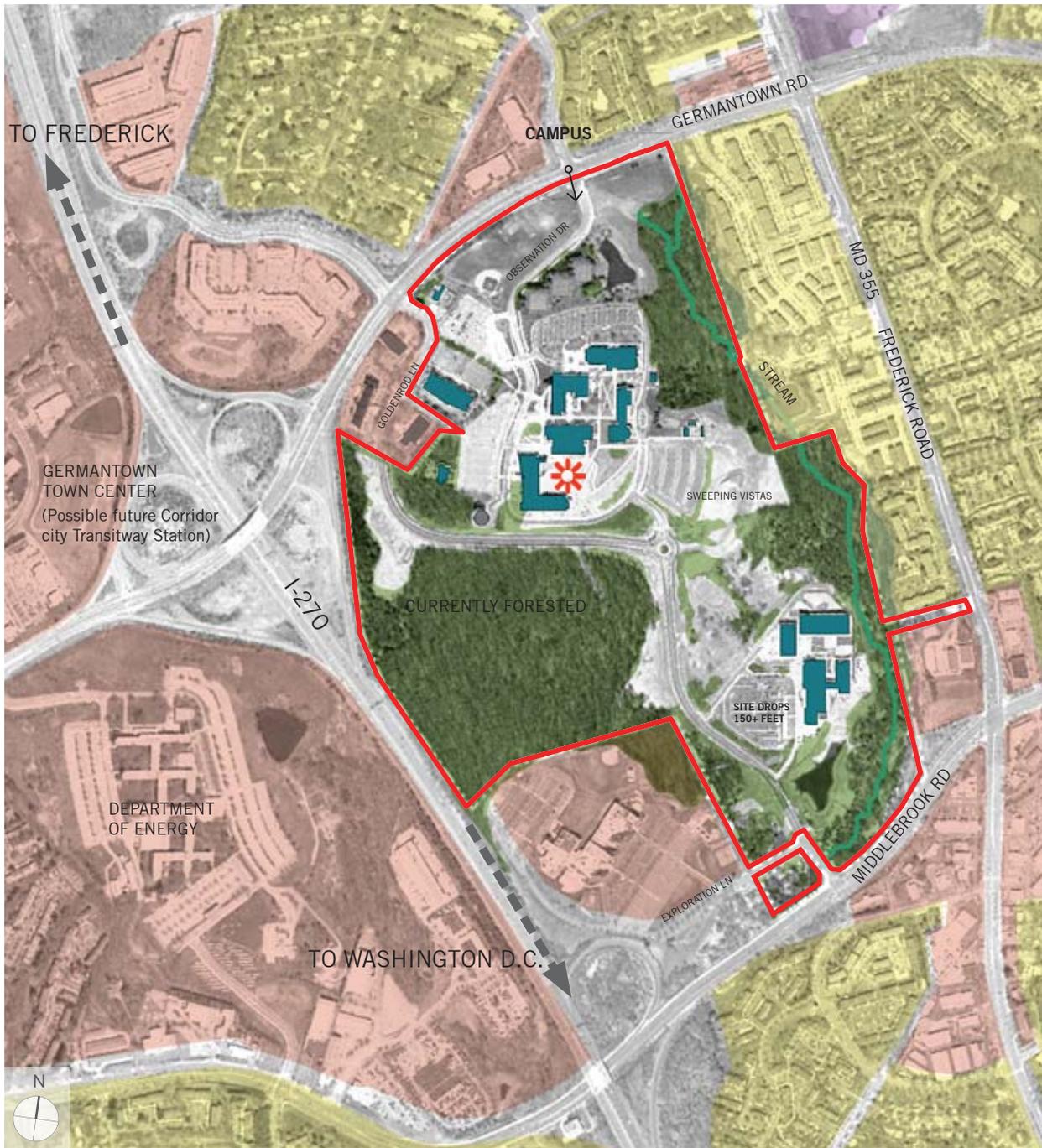


Image Not to Scale



language of the original campus buildings. Large full height oriel windows take advantage of the views that the site offers. A series of terraces that step down towards the new quad create a place for students to gather. The terraces are integrated with the building's storm water management facilities – small environmental site design (ESD) elements and storm water retention ponds.

### 3.2.2 Gateways and Views

#### Visibility and Identity

Arriving on the Campus from the north occurs after turning off MD-118 (Germantown Road) and proceeding south on Observation Drive. Germantown Road connects to MD-355 (Frederick Road) to the east and I-270 and the Germantown Town Center to the west. The entry sequence, signage and landscaping do little to reinforce the sense of arrival or reinforce the identity of the Campus.

The approach road eventually climbs a slight rise where the views are of the Campus buildings, a storm water management pond, and parking lots. The parking lots dominate the view. Once on the Campus the general architectural consistency of the buildings, the spherical water tower, and the views of the adjacent woods and stream valley provide the basis for creating and reinforcing the sense of place unique to the Germantown Campus. (See Figure 3.05 Gateways and Views).

#### Access

Upon arriving on the Campus, Observation Drive provides access to parking areas and a view of the spherical water tower with its planet earth graphic. Observation Drive separates the majority of the parking from the academic buildings, creating several points of potential conflict for pedestrians crossing the roadway on their way to the buildings.

A secondary road currently wraps around the four Campus buildings to the east providing a lower-level entrance into the High Technology and Science Center. This road continues to the south and west to form an internal loop road wrapping the main academic quad of the campus.

The College has developed a second point of access onto Campus to improve connections. Observation Drive was extended to Middlebrook Road as a part of the Bioscience Education Center project. It connects Middlebrook Road to Goldenrod Lane at a new traffic circle southeast of the new Bioscience Education Center. The College is currently coordinating with Montgomery County on County plans for a proposed eastern entrance that will extend Cider Press Mill Road from Frederick Road (Md. Rte. 355) to the new traffic circle. The College is also coordinating with the County on the County's proposal to connect Observation Drive with Goldenrod Lane to the northwest of the Paul Peck Academic and Innovation Building. Montgomery County agencies and the Maryland National Capital Planning Commission are working with the College to develop the proposed connections.

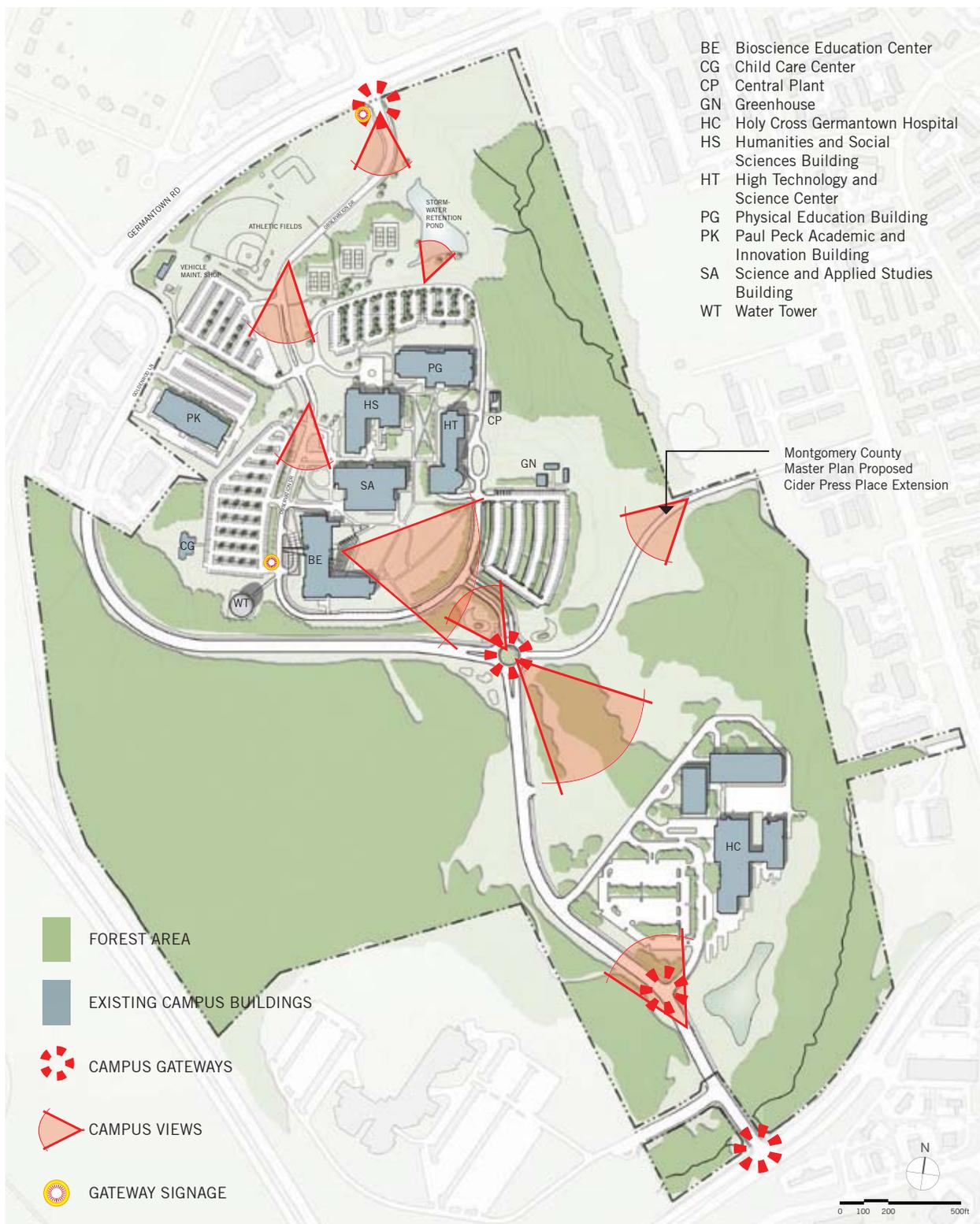
The College plans to develop the land southeast of the Campus into the PIC MC. The connections required by this commercial development, as well as other development to the north of the College, will allow for additional vehicular and pedestrian connections to be made over time at the Campus.

### 3.2.3 Open Space

The Campus is organized around a large, L-shaped quadrangle. The entrances to four of the existing academic buildings on the campus are organized around this quadrangle. This creates strong pedestrian connections between buildings and provides for an organizational cohesiveness.

With the focus of building entrances onto the space within this quadrangle there is a challenge in how to expand the campus beyond the quadrangle, to the new quadrangle fronted by the Bioscience Education Center and to

### FIGURE 3.05 GATEWAYS AND VIEWS



the southeast through the sites of the proposed PIC MC and the Holy Cross Germantown Hospital. An emphasis on improved pedestrian paths to the south from the main quad, and a change to the interior circulation of the Science and Applied Studies Building allowing access from the south will improve connections from the quad to the Bioscience Education Center and the new Campus entrance. See Figure 3.06 Open Space.

The College should develop a landscape master plan that prioritizes connections between the original campus quad and the new south quad fronting the Bioscience Education Center, and enhances the sweeping views from there.

### **3.2.4 Pedestrian and Bicycle Circulation**

#### **Pedestrian Circulation**

The main campus pedestrian spine runs east-west between the Humanities and Social Sciences Building and Science and Applied Studies Building. The spine links the parking lots across Observation Drive and the High Technology and Science Center. A north-south path borders the main quadrangle, and connects to the new Bioscience Education Center Quad (BE quad). It is a weak connection that should be enhanced with new landscaping. (Refer to Figure 3.07 Pedestrian and Bike Circulation). Stronger pedestrian connections need to be developed from the main quadrangle south to the outdoor space defined to the west and south by the Bioscience Education Center.

Observation Drive loops around the campus core with the parking lots located on the outside of the loop. Sidewalks are provided from the lots to designated crossings of Observation Drive. A sidewalk is provided along the entire length of Observation Drive on the building side.

A goal of this Plan is to develop connections with the planned PIC MC to the south. In addition to programmatic connections, the development of the PIC MC is anticipated to provide clear pedestrian links to the Campus and the Bioscience Education Center.

#### **Bicycle Circulation**

A ten-foot wide shared use path has been constructed on the west side of Observation Drive from Middlebrook Road to the circle at Goldenrod Lane. The shared use path continues from the circle along the new connector to the campus loop of Observation Drive. A shared use path is also constructed along the north side of Goldenrod Lane from the circle to the edge of the College's property, leaving a gap of about 1,100 feet from the end of the path to MD 118.

Some bicycle facilities exist on roadways in the vicinity of the Campus which include:

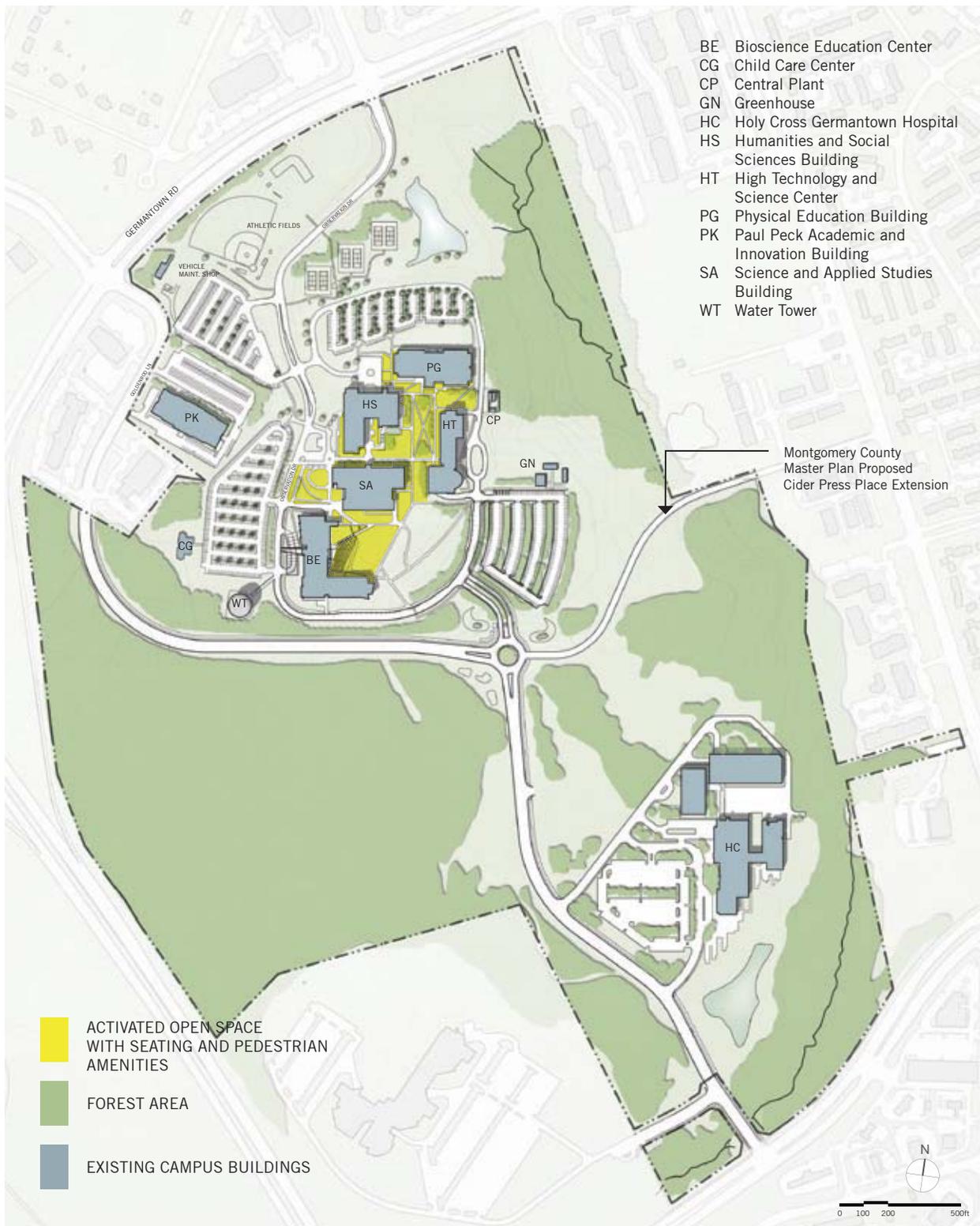
To the north:

- Off-road path on Observation Drive starting one block north of MD 118 and continuing north;
- Off-road path on Seneca Meadows Parkway from MD 118 to MD 355.

To the south:

- On-road bicycle lanes striped on Middlebrook Road starting at MD 355, going southwest past Observation Drive and the I-270 interchange, ending at Great Seneca Highway;
- Off-road path on the west side of Great Seneca Highway from Middlebrook Road to Wisteria Drive

**FIGURE 3.06 OPEN SPACE**



- Off-road path on Wisteria Drive from Waring Station Road west to Walter Johnson Rd (one block from MD 118).

The County wide Bikeways Functional Master Plan (2005) proposed bike facilities on Germantown Road and Frederick Road. The Montgomery County Planning Department began an update to the bicycle master plan in July 2015.

At present few bicycles are observed on the Germantown Campus. Bicycle riding may in part be inhibited by the presence of steep slopes at the south side of the main campus. However, with the shared use path bicycling can be a convenient way to travel between the Germantown Campus and the Holy Cross Germantown Hospital complex.

### 3.2.5 Vehicular Circulation and Parking

The Campus is bounded generally by Germantown Road (MD 118) to the north, Interstate 270 to the west, Middlebrook Road to the south and Frederick Road (MD 355) to the east, although there are townhouse neighborhoods and small shopping areas within those bounds. Regional access is provided by I-270 and Frederick Road. The Germantown Road and Observation Drive intersection is signalized and serves as the main access point for the Campus from the north. The intersection of Middlebrook Road and Observation Drive is signalized and is the point of access from the south. The Campus can also be accessed from Goldenrod Lane via a traffic circle with Observation Drive. Goldenrod Lane also has direct driveways to Lot 2 and the Paul Peck Academic and Innovation Building.

Observation Drive is the “roadway spine” of the campus. On-campus vehicle access and circulation are provided by minor roadways that connect Observation Drive with the parking lots and loading areas. The Campus access and circulation situation is illustrated in Figure 3.08. This figure also shows the parking facilities currently serving the Campus.

Turning movement counts were conducted in September 2014 at the three intersections providing access to the Campus for a traffic study of expansion of the Science and Applied Studies Building. Counts were performed at the Observation Drive and Goldenrod Lane intersections on Germantown Road and the Observation Drive intersection on Middlebrook Road.

The counts recorded 1085 inbound and 221 outbound vehicles during the a.m. peak hour (8:30-9:30 a.m.) and 320 inbound/662 outbound vehicles during the p.m. peak hour (5:00-6:00 p.m.) Not all of this traffic is attributed to Montgomery College since these intersections also provide access to some other non-College offices. At the time of the counts the Holy Cross Germantown Hospital was not yet open but some staff would have been present. Traffic analysis of projected volumes indicated the intersections operate within the acceptable level-of-service planning standards.

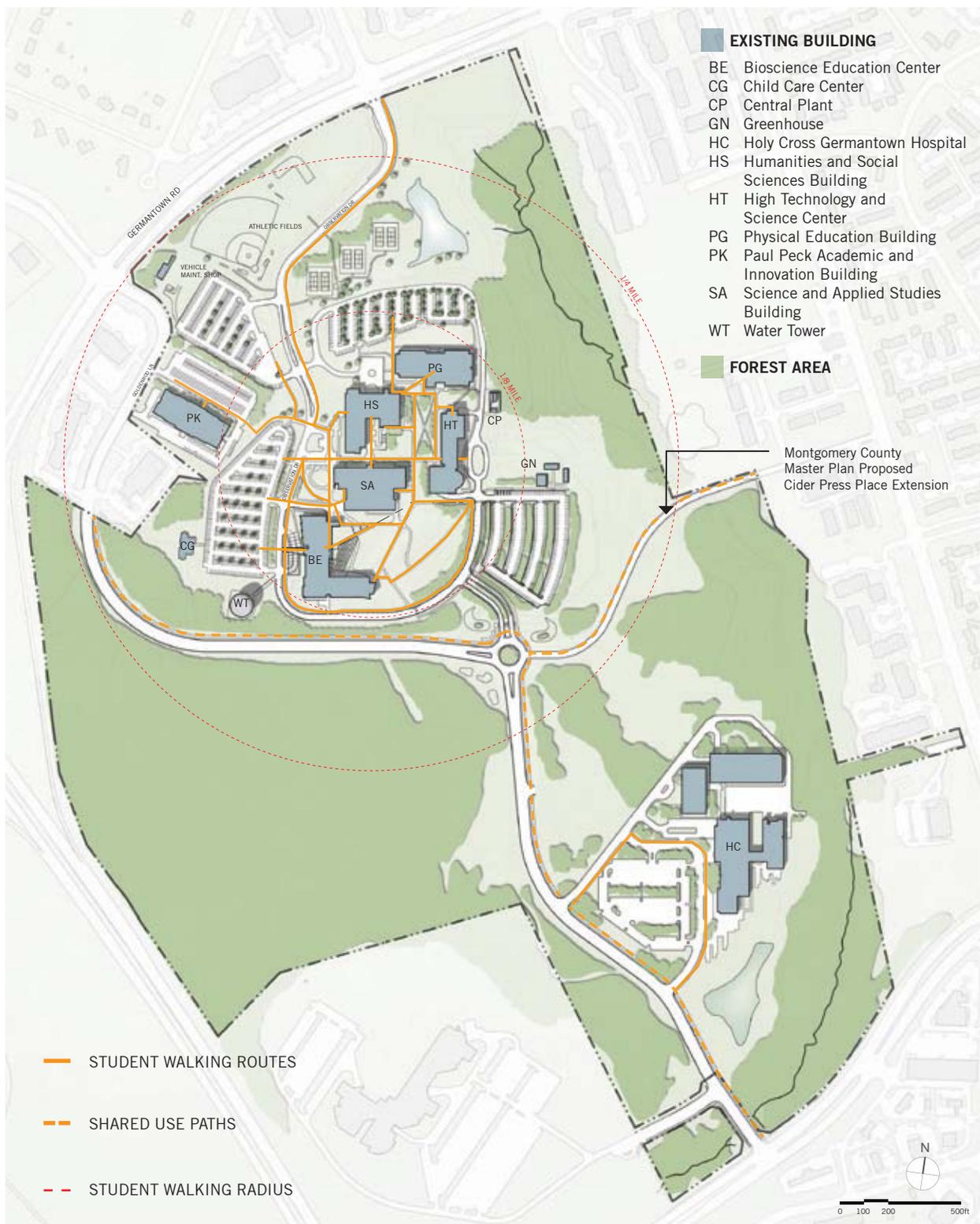
The data also indicated the following trip distribution:

Roadway Approach	Distribution
• From the north on Observation Drive	7%
• From the east on Germantown Road and Middlebrook Road (MD-355)	36%
• From the west on Germantown Road and Middlebrook Road (I-270)	57%

The main existing vehicular and pedestrian operational and safety problems include:

- Speeding (both ways) along Observation Drive between the two sharp turns as you enter the campus from Rt.118;

FIGURE 3.07 PEDESTRIAN AND BIKE CIRCULATION



- Speeding by drivers heading north from the 4-way stop at the entrances to the Physical Education Building and Lot 1 towards the sharp turn at the corner of the athletic field; and
- Poor line of sight at each of these sharp turns, reducing the driver's awareness of pedestrians.

### Mode Share

A survey of students and faculty/staff taken in March 2015 for the College Town Plan obtained information on commuting mode share. The faculty/staff commute by driving is 85%. Information for student mode share and overall mode share to Germantown campus is shown in Table 3.07. Germantown Campus has a far higher percentage of students driving and far lower transit usage than the Rockville or the TP/SS Campuses.

TABLE 3.07 GERMANTOWN CAMPUS STUDENT AND TOTAL MODE SHARE, 2015

	Drove	Dropped	Carpool	Transit	Walk	Bike	Other
Students	56%	9%	6%	26%	2%	1%	-
Overall	73%	-	3%	20%	<1%	<1%	3%

Source: College Town Plan

### Parking

The Campus has 1,659 spaces distributed among five surface lots and four small parking areas. Montgomery College's annual September survey of parking activity in 2014 counted a peak of 1,298 vehicles, a parking utilization rate of 78% overall.

The Maryland Higher Education Commission (MHEC) standards for community college parking require 0.75 space for each FTDE student and 0.75 space per FT Faculty and FT Staff. In addition, visitor parking in the amount of 2% of the total student/faculty/staff spaces is required. Finally, the Americans with Disabilities Act (ADA) requires reserved accessible spaces in the amount of 20 for the first 1,000 spaces plus one space for each 100 spaces over 1,000.

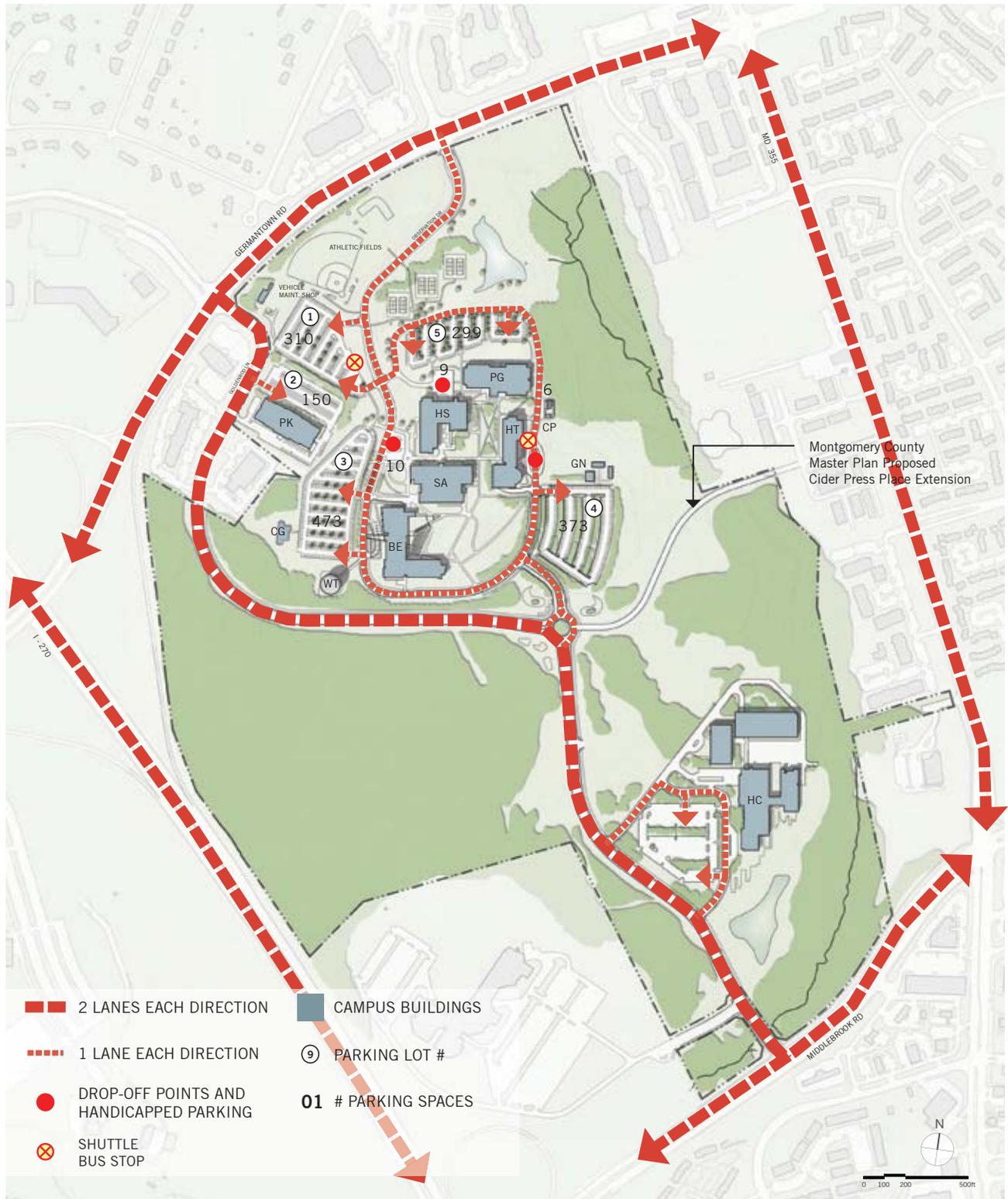
Using MHEC standards, the total required number of spaces for existing conditions would be 2,126, meaning a current deficit of 869 spaces. Based on the parking survey conducted in 2014 when the existing 1,659-space supply was only 78% occupied, it is clear there is no parking deficit. The actual existing condition is a small surplus. The main reason for the difference is that almost 40% of students arrive using a non-auto mode or are dropped off, and therefore do not use a parking space.

It is most important to use a realistic parking space requirement for students because they are by far the largest part of the Campus population, with 9 FTDE students for each FT Faculty and Staff member. In addition, the number of FTDE students is expected to increase by 60% by 2023, whereas FT Faculty and Staff will increase by 13%.

Based on actual counts from the 2014 parking survey, peak student parking demand is accommodated by using a modified ratio of 0.55 for student spaces. This ratio is consistent with the current student driving mode share of 56%. Using this alternative student parking ratio of 0.55 prevents an overestimation of parking deficit.

By using the MHEC standards with the exception of a modified parking ratio of 0.55 for FTDE students, the estimated space deficit in 2023 compared with existing supply is 833 spaces as summarized in Table 3.08.

FIGURE 3.08 PARKING AND VEHICULAR CIRCULATION



**TABLE 3.08 GERMANTOWN CAMPUS PARKING NEEDS, 2023**

Parking Supply 2013	Parking Deficit 2023 using MHEC standards	Parking Deficit 2023 using modified MHEC standards
1,659	1,648	833

Source: Montgomery College and WRA

### 3.2.6 Transit

Montgomery County Ride-On Route 55 (Rockville-Germantown Transit Center) provides service directly into the Germantown Campus, Monday-Sunday. During the weekdays service to the campus runs from approximately 5:00 a.m. until 1:00 a.m.

The table below presents the peak frequency, average weekday riders and the percentage of the routes for users that utilize the Montgomery College Pass.

**TABLE 3.09 GERMANTOWN CAMPUS BUS RIDERSHIP, 2014**

Bus Service	Peak Frequency	Average Weekday Riders	% Montgomery College Pass
55 - Germantown /Rockville	10	8,083	9.9%

Source: Montgomery County Ride On

Two other Montgomery County Ride-On bus routes currently provide transit services along roadways bordering the Montgomery College Germantown Campus. Using these routes involves a longer walk from the Campus to the stops. These routes are: Route 70 (Germantown-Bethesda Express) and Route 79 (Shady Grove –Germantown).

The existing bus stop on the Campus is located in Lot 1. Another public transportation facility that will serve the Campus in the long term is the proposed Corridor Cities Transitway (CCT), the Red-Line Extension that connects the Shady Grove Metro Station to Clarksburg. The closest CCT stop to the Campus will be located within the Germantown Town Center on the west side of I-270. Figures 3.09 and 3.10 illustrate public transportation serving the Germantown Campus.

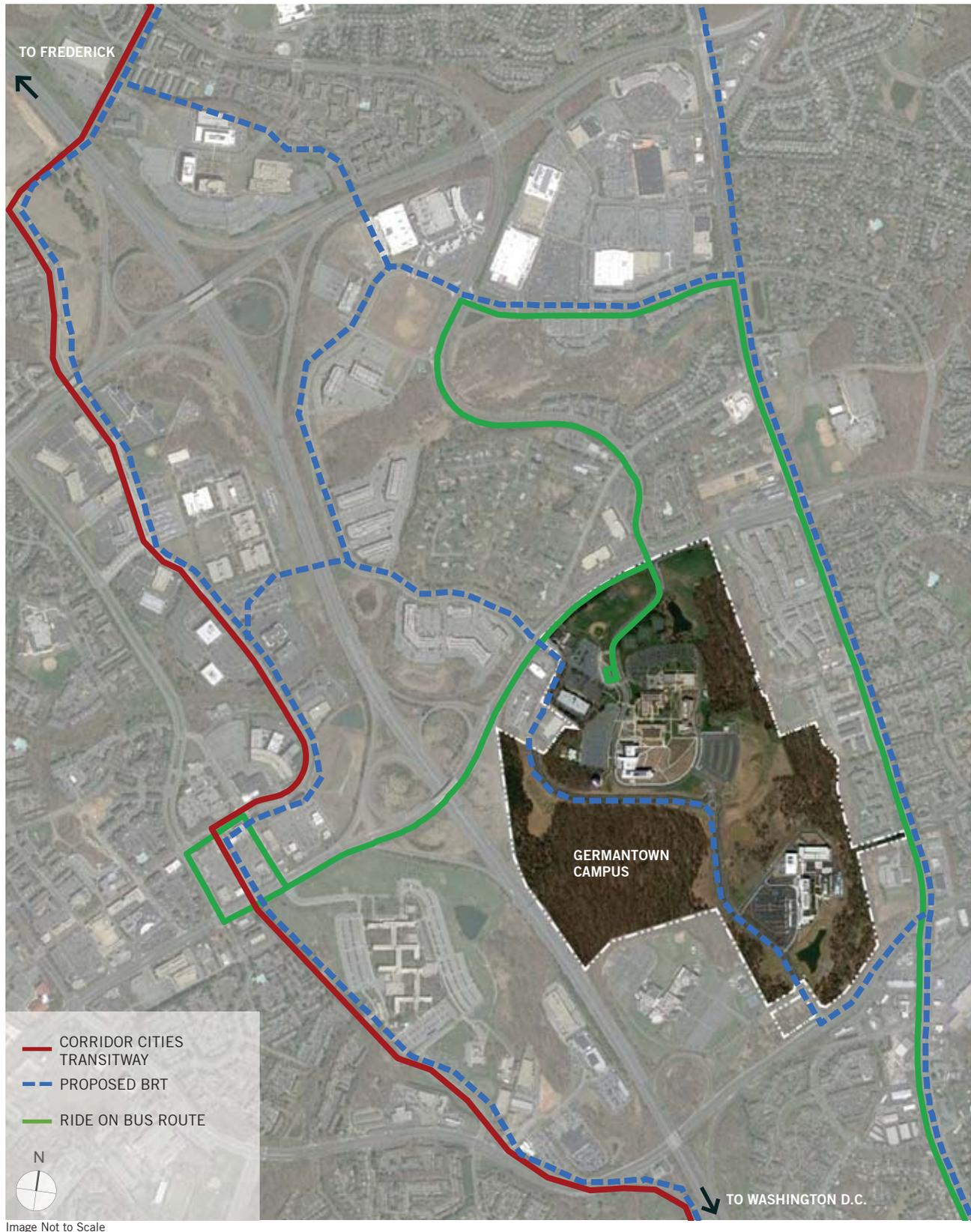
Though the Campus is located within a rural to suburban transition zone the existing and planned transit routes and Maryland Transportation Authority’s (MTA) MARC Rail station in the Germantown Town Center are well positioned to meet current and future needs. The positive impact of public transit service is due to the fact that the Campus’ population base is remarkably concentrated within a 12 mile radius. Based on ridership surveys completed in the fall of 2007, between 30-40% of faculty/staff and 45-50% of students live within an even more concentrated 5 mile radius.

However, at present only 15% of faculty and staff and 30% of students arrive to the Germantown Campus via bus, shuttle, walking or biking. This suggests that there is significant potential to reduce single occupant automobile travel by implementing such Transportation Demand Management (TDM) techniques as a parking-transit incentive program and/or a parking disincentive program.

The transit challenges for the Germantown Campus include:

- The bus ride on the existing Route 355 takes 45 minutes between the Shady Grove Metro Rail Station and the Germantown Campus. A direct express bus connection between the Germantown Campus and the Shady Grove Metro Rail station could reduce the transit trip time to 15 minutes.

**FIGURE 3.09 TRANSIT**



At the Germantown Campus bus stop issues include:

- Passengers must board from the parking lot – there is no curb or passenger platform;
- Wheelchair customers are unable to board at current transit stop;
- The bus stop and shelter are too small for passenger volumes; and
- The bus path through the parking lot creates conflicts with pedestrians and vehicles.

Montgomery College contracts for shuttle service between the Rockville Campus and the Germantown Campus. Shuttle stops at Germantown are located at the bus stop in Lot 1 and at the circle in front of the High Technology and Science Center. Shuttle service from Rockville starts at 7:00 a.m. and runs every hour until 6:00 p.m. The shuttle from Germantown to Rockville runs every hour from 6:30 a.m. to 6:30 p.m. The shuttle greatly decreases the travel time between campuses compared with using public transportation, reducing travel time from 90 minutes to 45 minutes.

### 3.2.7 Major Utilities

The existing central plant and utility distribution infrastructure is a critical underpinning that supports the Campus' built environment. The College is in the process of developing a separate Utility Master Plan that identifies and documents existing and proposed utility infrastructure needs and recommendations.

The latest Utilities Master plan for the Campus was completed in 2012 and includes an overview of the existing utility infrastructure systems as well as a detailed assessment of their condition and ability to meet future demand. This plan is currently being updated in coordination with this Facilities Master Plan. An inventory of major utilities infrastructure is illustrated on Figure 3.11.

#### Mechanical

Most campus buildings are currently heated with modular, gas fired boilers located in individual buildings. The Physical Education Building is heated by boilers in the Humanities and Social Sciences Building through an underground hot water distribution system. A new central boiler plant was constructed in the Bioscience Education Center to support creation of a district heating water loop as buildings are renovated or constructed. Additional capacity will be required as the campus is further expanded. The existing natural gas service provided by Washington Gas is adequate for current demand, but may need to be increased for later construction projects.

A central cooling plant is located in the basement of the High Technology and Science Center. The plant currently serves Humanities and Social Sciences Building, the Physical Education Building, and the Science and Applied Studies Building. A cooling plant was installed in the Bioscience Education Center to supplement the High Technology and Science Center plant and was connected to the campus chilled water distribution network. The combined capacity of the cooling plants will have to be increased as the campus is further expanded.

#### Electrical

The Campus is served by the Potomac Electric Power Company (Pepco) from looped underground medium voltage lines which serve the Campus at the intersection of Route 118 and Goldenrod Lane. Most of the buildings have separate utility meters and a local step down transformer to distribute 480/277 volt, 3 phase, 4 wire system in the building except for the Physical Education Building which is being fed from the Humanities and Social Sciences Building. The existing Pepco feeders have adequate capacity to accommodate planned campus expansion.

### FIGURE 3.10 TRANSIT

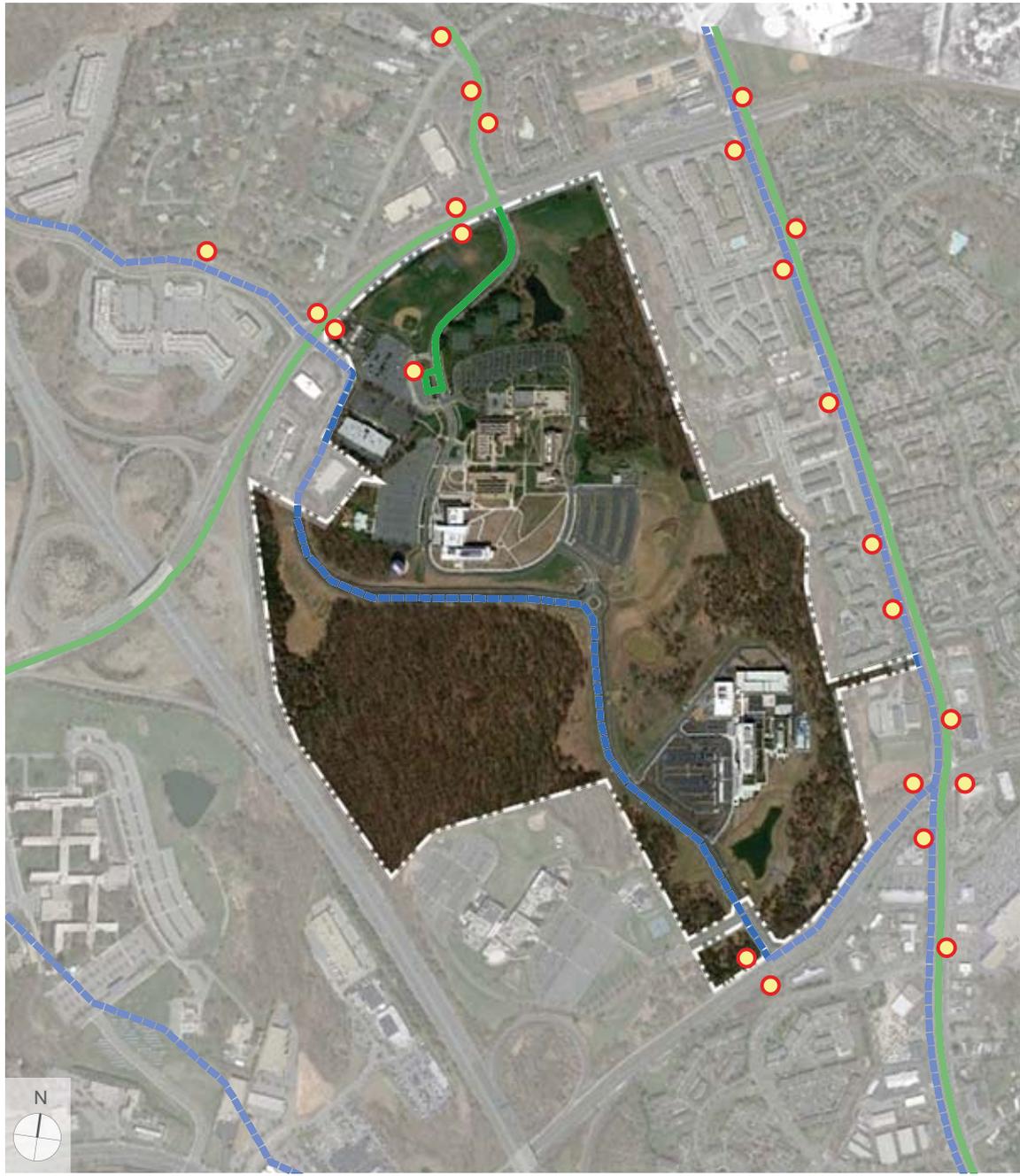


Image Not to Scale

- - - PROPOSED BRT
- RIDE ON BUS ROUTE
- BUS STOP

## Natural Gas

Natural gas is provided by Washington Gas and the existing service currently meets the Campus needs.

## Water and Sanitary

The Campus has a private on-site domestic/fire water and sanitary sewer system. The on-site systems are currently adequate for the Campus needs. There are public mains of adequate capacity, operated by WSSC, adjacent to the Campus; public water mains are located in Germantown Road to the north and Goldenrod Lane to the south. WSSC sanitary sewer mains cross the Campus from the northern portion of Goldenrod Lane, running east to the Campus' east property boundary and then following said boundary line south toward Middlebrook Road, the majority of the campus sanitary lines feed into a WSSC public main located within the Goldenrod Lane/Observation Drive traffic circle, then running south to Middlebrook Road.

### 3.2.8 Information Technology Systems

The existing utility and information technology infrastructure is a critical underpinning that supports the Campus' built environment. The College has undertaken a series of separate planning activities compiled in a Utility Master Plan that identifies these various resources. The Appendix includes an overview of the existing Campus utility and information technology infrastructure.

The main point of presence (MPOP) for the campus is currently the Bioscience Education Center. Each of the eleven (11) existing buildings is connected via a duct-bank system back to BE, and is fed with optical fiber cabling to the Main Distribution Frame (MDF) of each building, respectively. Exact fiber counts between buildings can be verified, but are currently adequate to support existing and future demands of the existing buildings.

### 3.2.9 Natural Systems and Sustainability

#### Stormwater Management

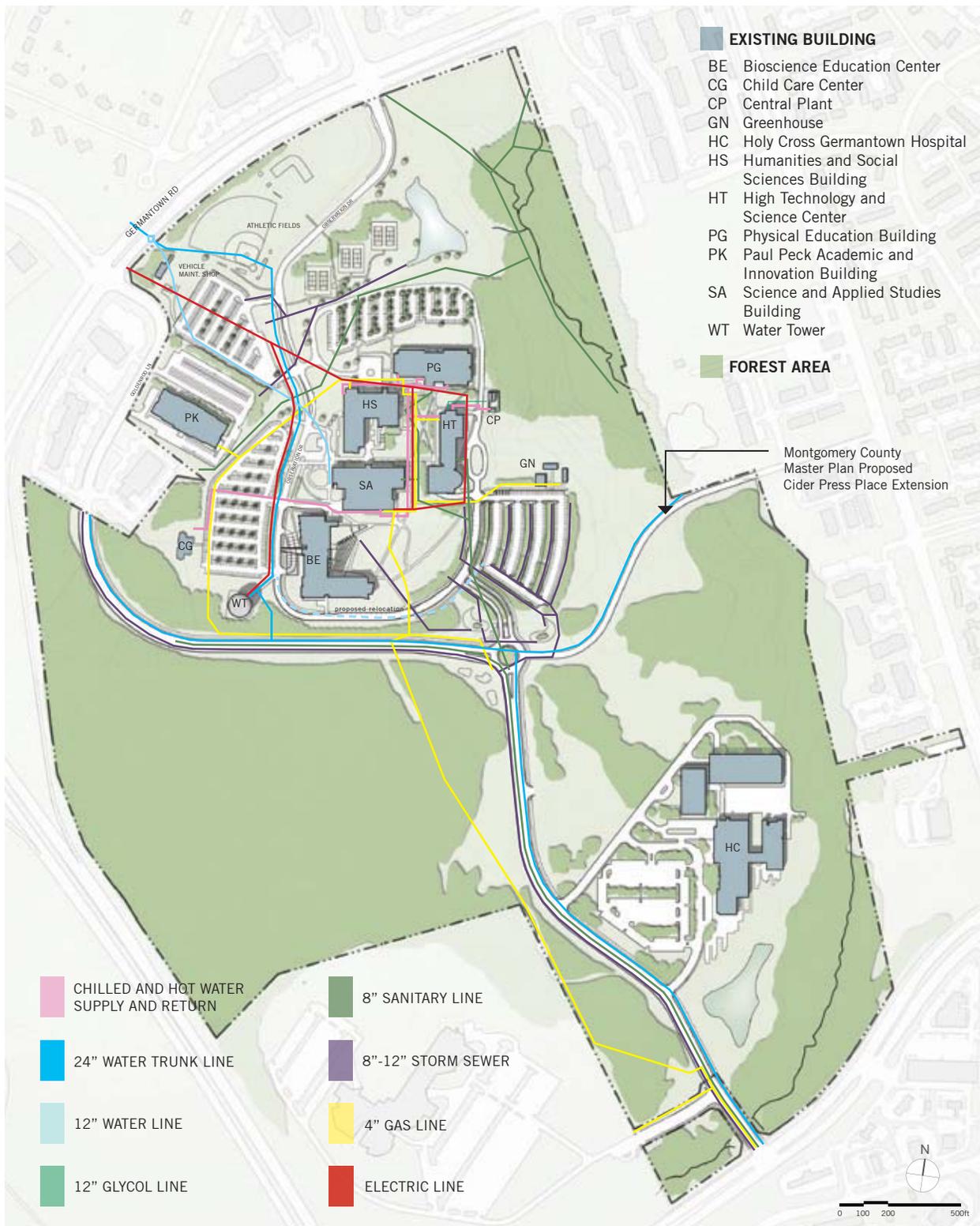
The Campus occupies 228.7 acres consisting of woodlands, meadows and a built environment consisting of buildings, roads, sidewalks, and parking lots. At approximately seven percent of the total Campus area, the built environment is largely impervious.

The Campus property is divided into six major drainage areas. The high point of the Campus is located at the WSSC water tower. In general, all of the existing Campus development to the north of the water tower (approximately 37 acres), plus the Paul Peck Academic and Innovation Building site, drains to the existing stormwater management pond located at the northeast portion of the Campus. This pond also provides treatment for approximately 32 acres of off-site area to the north – storm drainage for MD-118 (Germantown Road) and the residential and business properties located to the north of the Campus. An additional 90+/- acres of the property, including the new Bioscience Education Center and Holy Cross Germantown Hospital, drain to the recently constructed stormwater management pond located to the south, near Middlebrook Road. The remaining acreage of the Campus discharges to various tributaries. All of the run-off from the built-up portions of the Campus drainage areas combine in the Gunners Branch stream valley prior to flowing west underneath I-270.

The commercial properties along Goldenrod Lane drain into a stormwater management “dry” pond located to the east of the parking lot associated with the Paul Peck Academic and Innovation Building. This existing pond provides water quality control as well as quantity control for its respective drainage area. The discharge from this “dry” pond is into the Campus storm drain system which ultimately discharges into the existing storm water management pond located in the northeast portion of the Campus.

The existing north stormwater management pond provides water quality and 2-yr, 10-yr and 100-yr quantity

**FIGURE 3.11 MAJOR SITE UTILITIES**



control for its respective drainage area. The pond was designed to the storm water management regulations in use in 1993. The stormwater management regulations in 1993 required water quality treatment for a half-inch of run-off over the impervious area. The wet pool in the pond provides this required water quality treatment. The pond was enlarged in 1995 to provide compensating water quantity control for the approximately 3 acres associated with the High Technology and Science Center itself. As part of this pond retrofit, an enlarged embankment was provided to accommodate a future roadway. The existing road and site improvements east of the High Technology & Science Center are the only portion of the Campus not managed by the existing pond. A surface sand filter provides the water quality control for the approximately three acres associated with the High Technology and Science Center.

The existing south stormwater management pond, built as part of Observation Drive extension, provides channel protection volume and 10-yr quantity control for its respective 81.42 acre drainage area, including a projected future build-out of the southern portion of the property beyond that of Holy Cross Germantown Hospital. The pond was designed assuming 55% of its drainage area is impervious area for the ultimate built out condition. The pond is also designed to allow safe conveyance of a 100-yr storm event.

While the southern stormwater management pond provides the required quantity control treatment for Bioscience Education Center, stormwater management water quality treatment is provided via three bioretention facilities directly adjacent to the building and surrounded by planter walls, each of these facilities receives and treats runoff from the Bioscience Education Center roof top. A green roof is also provided on a portion of the Bioscience Education Center. Another large planter-style bioretention was constructed adjacent to the new open plaza area directly north of BE, west of SA. Parking Lot 4 to the southeast of BE contains roughly 30 separate micro-bioretention facilities within the lot's landscaped islands. Four surface sand filters were also constructed as part of BE project, one directly northwest of the traffic circle, one northeast of the circle, one directly east of the green house and a fourth located between the south pond and Observation Drive. Three modified surface sand filters combined with recharge trenches were also constructed in this area along the west side of Observation Drive, within County right-of-way.

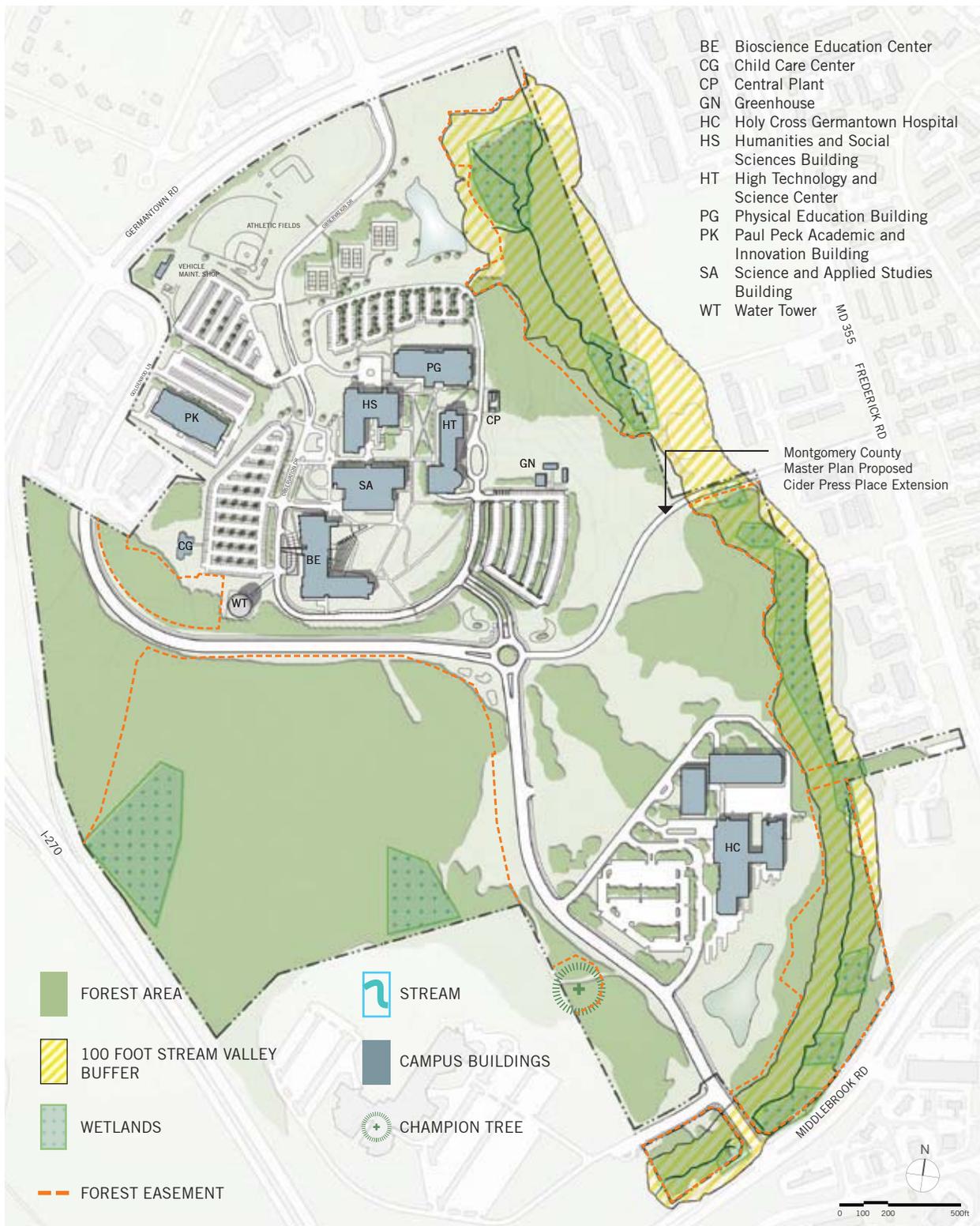
In 2009, State of Maryland Stormwater Management Act of 2007 was passed, requiring the development of a stormwater management plan that implements Environmental Site Design (ESD) to the "maximum extent practicable" and ensures that structural best management practices are only used where absolutely necessary.

ESD is defined as using small-scale stormwater management practices, nonstructural techniques, and better site planning to mimic natural hydrologic run-off characteristics and minimize the impact of land development on water resources. ESD includes conserving natural resources (drainage patterns, soil and vegetation; minimizing impervious surfaces (roads, walks, roofs) and increasing infiltration and evapotranspiration; and using other non-structural practices and innovative technologies.

The extension of Goldenrod Lane was the first campus project to require Maryland Department of the Environment (MDE) Chapter 5 Environmental Site Design (ESD) treatments. The drainage from Goldenrod Lane flows into two separate drainage areas, one to the west towards I-270 and one to the east towards Observation Drive. The high point of Goldenrod Lane is located directly south of the water tower, from this point east stormwater management is provided by three separate bioretention facilities located southwest of the traffic circle; to the west of the high point, located southwest of the large "bend" in the road stormwater management is provided by a bioretention as well as three separate micro-bioretention facilities. Another bioretention facility is located just west of the tie-in point to the existing portion of Goldenrod Lane (just south of the hotel.)

The renovation to the Science and Applied Studies (SA) Building, under design as of November 2015, will provide the required stormwater management treatment via two micro-bioretention facilities. One facility will be a planter box facility located at the southeast corner of the building and will capture and treat run-off from the building's roof. The other bioretention will be located at the southwest corner of the High Technology and Science Center and will capture and treat run-off from adjacent sidewalks.

FIGURE 3.12 NATURAL SYSTEMS



The undeveloped portion of the campus located south of the Goldenrod Lane extension drains to the south via two drainage areas. The first drainage area is located to the southwest of the water tower and collects at a drainage system where it crosses under I-270. The second drainage area is located north of the adjacent Hughes Network property. The run-off from this area collects into a storm drain system that conveys the run-off through the Hughes Network property.

### **Forest Conservation**

A Natural Resource Inventory and Forest Stand Delineation plan was prepared by Ecotone for the Foulger Pratt Companies and Montgomery College. A Forest Conservation Plan tracked under Plan MR 2009720 covering the entire Campus was approved in June 2010 by the Maryland-National Capital Park and Planning Commission and includes the implementation of a forest conservation area of approximately 71 acres in conformance with the State of Maryland Forest Conservation Act. Approximately 25 acres of the protected forest lies within the Gunners Branch stream buffer and wetland areas along the eastern and southern edge of the Campus. The remaining 46 acres lie to the south of the water tower and preserve an existing Priority 1 forest within the forest conservation easement. The approved Forest Conservation Plan has been amended and updated for ongoing projects (Goldenrod Lane Extension, Holy Cross Germantown Hospital, SA Building Improvements) since the original approval. The most recent amendment was approved in late 2015.



## 3.3 EXISTING BUILDING CONDITIONS and ANALYSIS

### 3.3.1 Building Usage

The Campus has six academic buildings of which four are grouped around a large quadrangle developed with the origination of the Campus. These include the Science and Applied Studies Building, the Humanities and Social Sciences Building, the High Technology and Science Center and the Physical Education Building. Supplementing these buildings are the Paul Peck Academic and Innovation Building, a renovated office building to the west of the original large quadrangle, the Child Care Center that was built in 2012, and the Bioscience Education Center which opened in September 2014 south of the Science and Applied Studies Building.

Buildings on the Campus generally fall into one or more of the following categories: academic, administrative, service (student, faculty, and staff focused), recreational, and facilities operations. Figure 3.14 illustrates the building usage categories.

**Science and Applied Studies Building (SA) (65,146 GSF)**, is a two-story structure constructed in 1978 with partial renovations in the late 1990s, and formerly contained general classrooms, computer-equipped classrooms, lecture halls, a large interdisciplinary science laboratory and related support functions, and the Science Learning Center. In addition, the Campus Safety and Security Office (open 24 hours a day) was housed in a portion of the upper floor, while part of the lower level houses the Admissions and Records Office, the Assessment Center, the Counseling and Advising Office, the Financial Aid Office, the International and Multicultural Student Center, the Student Employment Services Office, the Student Life Office, and the Student Success Center, with faculty and administrative offices located throughout the building.

The building is currently undergoing a two phase renovation and addition project to convert and reconfigure the building to house the Department of Physics, Engineering and Math along with the Math, Physics and Engineering Learning (MAPEL) Center. Upon completion of renovation/addition project the building will be in excellent condition.

**Humanities and Social Sciences Building (HS) (75,700 GSF)**, is a two-story building constructed in 1978, contains general classrooms, computer-equipped classrooms, the Writing Center and Language Lab, the library, MC Books & More (the bookstore), the cafeteria, and administrative and faculty offices. The library houses a variety of resources that support the curricula and programs on the Campus, including circulation stacks, group study areas, and computers for general student use and resources access. The building is in poor condition and has a substantial deferred maintenance backlog.

**Physical Education Building (PG) (36,770 GSF)**, is a one story building with partial basement constructed in 1983, contains two general purpose classrooms, a gymnasium, a swimming pool, a weight room, locker rooms, and faculty offices for the Health and Physical Education Department. In addition to supporting the Physical Education program the building is used by students, faculty and staff as well as the community for recreational purposes. The building is in poor condition including substantial envelope issues and has a substantial deferred maintenance backlog.

**High Technology and Science Center (HT) (75,542 GSF)**, is a four story structure constructed in 1995, contains general classrooms, computer-equipped classrooms, specialized technology labs for Cybersecurity, a Technology Center, a Math and Accounting Learning Center, a teleconferencing room, the Globe Hall auditorium with seating for 517, and faculty offices. The high performance central chilled water plant is located in the basement of this building and distributes chilled water to other campus buildings except the Paul Peck Academic and Innovation Building. The plant was designed to be expanded to increase capacity and to serve other buildings on the Campus. The building is in fair to poor condition and has a substantial deferred maintenance backlog. This building currently has one elevator that was modernized in 2015. A second ADA passenger elevator should be considered.

**FIGURE 3.13 BUILDING MASSING AND MATERIALS**



Image Not to Scale

- Modern Vocabulary**
- Built in late 1970s- early 1980s
- One - three stories. Horizontal lines, ribbon windows, and solar collectors on the roofs.
- Typically white painted concrete and dark windows

- Renovated Office Building**
- Physically removed from the campus
- Flat roofs, red brick and dark ribbon windows

- Neo-Traditional Vocabulary**
- Built in 1995
- Sloping roofs, vertical tower element and punched windows
- Buff and light red brick exterior

- Surrounding Non-Campus Buildings**

- BE Bioscience Education Center
- CG Child Care Center
- CP Central Plant
- GN Greenhouse
- HS Humanities and Social Sciences Building
- HT High Technology and Science Center
- PG Physical Education Building
- PK Paul Peck Academic and Innovation Building
- SA Science and Applied Studies Building
- WT Water Tower

**Paul Peck Academic and Innovation Building (PK) (68,826 GSF)**, is a recently purchased two story building containing classrooms and administrative, faculty and staff offices of the English Department. The first floor includes Distance Education and Learning Technologies and the Center for Teaching and Learning. The building is used for credit and non-credit education and training activities. The second floor is being utilized by Montgomery County for a bioscience and technology incubator, the Germantown Innovation Center. The building is in good condition.

**Bioscience Education Center (BE) (126,900 GSF)**, is a four story building, opened in 2014, that forms part of the new Science quadrangle and houses the Biology, Biotechnology, and Chemistry Departments and the office of the Dean of Business, Science, Math and Technology. A high performance central hot water and chilled water plant is located in the basement of this building. The plant serves the building and a direct buried piping distribution system that sends hot water and chilled water to the Science and Applied Studies Building and to proposed future buildings to the south. The chilled water distribution system will also connect to the existing Campus chilled water distribution system forming a redundant network for Campus cooling. The building is in excellent condition.

**Child Care Center (CG) (5,535 GSF)**, is an accredited childcare facility constructed in 2012 and licensed to enroll up to 40 children. The building supports the elementary education program with applied observation capabilities and other experiential opportunities. The building is in excellent condition.

The state-of-the-art Germantown Early Learning Center (ELC) will soon be fully integrated into the Education and Social Science Department. The Center will continue to serve as an observation and practicum site for the Early Childhood Education program, and will be accessible to all disciplines providing opportunities for research and learning. As a dedicated laboratory for the Education Program, the ELC at Germantown will serve as an applied learning environment for students. This is an important expansion for the Education Program as applied learning experiences are a critical element of learning in many disciplines.

Additional benefits of the academic alignment include enhanced grant funding opportunities and greater opportunities to establish partnerships with the higher education community, the public school system, and the private sector. Growth in the Germantown area, the need to accommodate special programs in Montgomery County, and the availability of on-site child care for resident partners in the PIC MC are factors anticipated to drive the need for increased capacity at the Germantown ELC. In addition, the College foresees a need to add a college classroom to support the education program, and accommodate real-time observation and analysis, which would greatly enhance the experience and learning of students.

**Greenhouse (GN) (4,562 GSF)**, constructed in 2012, supports the Landscape Technology program. It is used to support classroom and lab instruction and serves as a plant material storage building and nursery. The building is in excellent condition.

**Support Buildings**, There are a number of other small buildings and structures on the Campus that provide support to activities and programs, including: a baseball storage shed, two baseball dugouts, dugout storage shed, and a press box that supports the baseball program, as well as storage sheds for landscape materials, greenhouse materials, tennis activities and the Child Care Center operation. These facilities vary in condition, but all are serviceable at the present time. The Campus also contains the collegewide fleet management operations and a vehicle service garage.

### 3.3.2 Building Conditions and Deficiencies

In August, 2015, the College updated the facilities condition assessment for buildings and site infrastructure components including: electrical utilities, stormwater, sanitary sewer, parking lots, etc. at each of its three campuses. The goals of this effort were to:



**SA - Science and Applied Studies Building**



**HS - Humanities and Social Sciences Building**



**HT - High Technology and Science Center**





**BE - Bioscience Education Center**



**BE - Bioscience Education Center**



**PK - Paul Peck Academic and Innovation Building**



**CG - Child Care Center**



**GN - Greenhouse**

**FIGURE 3.14 BUILDING USAGE**



Image Not to Scale

<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: orange; margin-right: 5px;"></span> ACADEMIC</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: yellow; margin-right: 5px;"></span> STUDENT SERVICES</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: grey; margin-right: 5px;"></span> ADMINISTRATIVE</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: green; margin-right: 5px;"></span> PHYSICAL EDUCATION</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: grey; margin-right: 5px;"></span> SURROUNDING NON-CAMPUS BUILDINGS</li> </ul>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: brown; margin-right: 5px;"></span> OPERATIONS</li> <li><span style="display: inline-block; width: 15px; height: 15px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, yellow 2px, yellow 4px); margin-right: 5px;"></span> MIXED USE WITH STUDENT SERVICES</li> <li><span style="display: inline-block; width: 15px; height: 15px; background: repeating-linear-gradient(-45deg, transparent, transparent 2px, yellow 2px, yellow 4px); margin-right: 5px;"></span> MIXED USE WITH ADMINISTRATIVE AND STUDENT SERVICES</li> <li><span style="display: inline-block; width: 15px; height: 15px; background: repeating-linear-gradient(-45deg, transparent, transparent 2px, brown 2px, brown 4px); margin-right: 5px;"></span> MIXED USE WITH OPERATIONS</li> </ul>	<ul style="list-style-type: none"> <li>BE Bioscience Education Center</li> <li>CG Child Care Center</li> <li>CP Central Plant</li> <li>GN Greenhouse</li> <li>HS Humanities and Social Sciences Building</li> <li>HT High Technology and Science Center</li> <li>PG Physical Education Building</li> <li>PK Paul Peck Academic and Innovation Building</li> <li>SA Science and Applied Studies Building</li> <li>WT Water Tower</li> </ul>
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- Develop a baseline condition assessment of each facility including related infrastructure components and building systems;
- Provide budget estimates to address required safety improvements and deferred maintenance backlogs for planning purposes;
- Identify building code and accessibility issues and compliance needs to ensure that the facilities are operated as required; and
- Utilize facility assessment findings to inform the development, prioritization, budgeting and scheduling of capital and maintenance/repair projects to address facility deficiencies.

The facilities condition assessment process involved the following:

- A Current Condition Analysis of existing facility deficiencies including deferred maintenance, capital renewal, near-term anticipated renewal, recommended discretionary improvements, and code non-compliance issues was completed;
- Anticipated capital renewal analyses developed projections of ongoing degradation of facilities' components and costs associated with renewal or replacement of these components as they reach the end of their useful life;
- Capital funding analyses involved formulation of scenario comparisons showing various funding levels and the effect of each on the condition and value of the building.

Information developed as part of the Facilities Assessment provided information for the development of a Facilities Condition Index (FCI) rating for each building on campus.

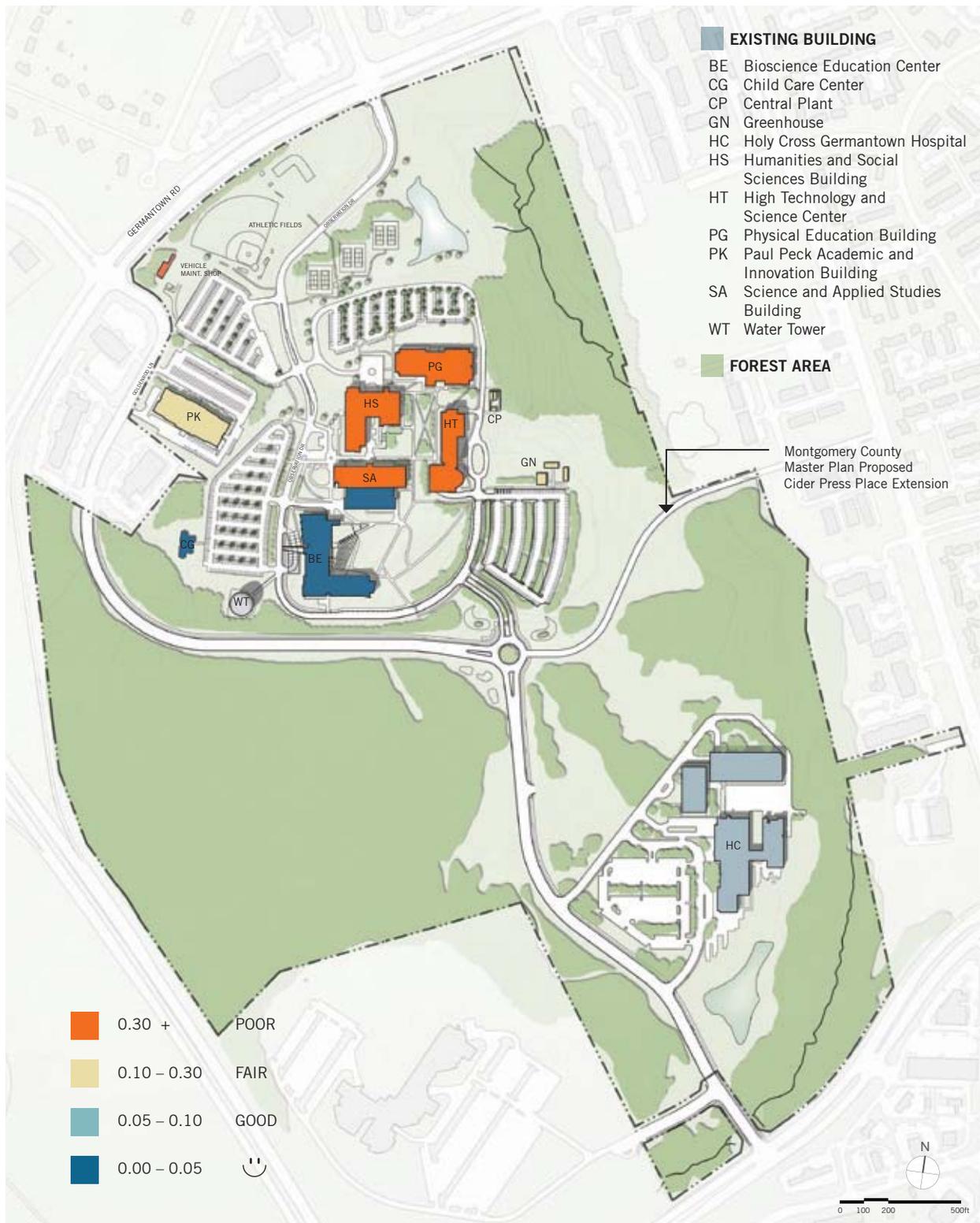
TABLE 3.10 GERMANTOWN CAMPUS TOTAL REPLACEMENT AND FCI VALUES FOR BUILDINGS, 2015

	Building Name	Use	Age/Year Built	Size	RV	FCI Cost	FCI
CG	Child Care Center	Day Care	2012	5,535	1,493	0	0.00
HT	High Technology and Science Center	Classroom Office	1995	75,542	16,263	6,741	0.41
HS	Humanities and Social Sciences Building	Classroom/Library Cafeteria	1978	75,700	16,930	9,739	0.58
PG	Physical Education Building	Athletic Recreation	1983	36,770	8,937	5,759	0.64
SA	Science and Applied Studies Building	Classroom Student Services	1978	65,146	14,905	8,388	0.56
PK	Paul Peck Academic and Innovation Building	Classroom	1988	68,826	12,199	2,736	0.22
	Grounds Storage Building	Storage Vehicles	1980	4,295	459	142	0.31

\* The 2015 VFA facility assessment excluded the Bioscience Education Center opened in 2014 and the Greenhouse opened in 2012. Both are in excellent condition and are assumed to have an FCI rating of under 0.05.

Source: VFA Report, 2015 and Montgomery College Facilities Office

**FIGURE 3.15 GENERAL BUILDING CONDITIONS**



## Facility Condition Index (FCI)

The FCI is a standard process for assessing the relative condition of buildings and site infrastructure components, facilitating comparison both within and among the campuses. For each building or site component, the Facility Condition Index (FCI) was developed which measures the relative amount of current deficiencies in the building including recommended improvements and grandfathered issues. The total value of recommended repairs is divided by current replacement value for the building or site component resulting in the FCI. The higher the FCI, the poorer is the condition of the facility or system component.

The FCI ranges for the standard of services for each building or site component are:

Good: .00 to .05  
 Fair: .05 to .10  
 Poor: Greater than .10

FCI is a standard measure used throughout the country; it is recommended by both the National Association of College Business Officers (NACUBO) and the Association of Higher Education Facility Officers (APPA).

Table 3.10 summarizes the findings from the 2015 assessment of buildings on the Campus. Buildings with an FCI rating of "Poor" should receive highest consideration for renovation through a capital project. For those buildings with an FCI rating of 0.60 or higher more study should be completed to determine if comprehensive renovation or demolition is the most feasible option. Buildings constructed in the late 1970s and early 1980s, that have not had capital renovation, are all in need of major systems upgrade or replacement in the future.

The following table provides a summary of the building deficiency amount by FCI range.

**TABLE 3.11 BUILDING DEFICIENCY FOR CATEGORY AMOUNT AND % OF TOTAL BUILDING DEFICIENCY**

<b>Deficiency</b>	<b>FCI Cost</b>	<b>Percent of FCI Cost</b>
<b>Less than 25% deficiency (1 buildings)</b>	\$2,736,000	8%
<b>26% to 50% (3 buildings)</b>	\$6,883,000	21%
<b>51% or greater Deficiency (3 buildings)</b>	\$23,886,000	71%
<b>TOTAL</b>	<b>\$33,505,000</b>	<b>100%</b>

Note: Does not include the Bioscience Education Center, the Greenhouse and small support buildings.

Source: VFA Report, 2015 and Montgomery College Facilities Office



## 3.4 FACILITIES PROGRAM

### 3.4.1 Campus Space Planning Factors

There are many planning factors that contribute to the dynamic and shifting landscape of today's higher education institutions. Some of the key planning factors to be considered in campus master planning that are anticipated to influence and drive the demand for higher education programs and the supporting facilities at Montgomery College are discussed in this section.

#### Past and Projected Enrollment and Program Growth

Montgomery College overall has experienced significant enrollment growth over the past five years. The Germantown campus has grown in total student FTE enrollment since 2008 and is projected to increase FTE enrollment by 32% by 2023. During this same planning period, Maryland is expected to see high growth in middle and high skill jobs requiring a two year or four year degree. This increase in jobs, along with the planned enrollment growth, will be a major factor driving the demand for access to educational programs and the supporting facilities.

Other drivers of enrollment growth at Montgomery College and its campuses are anticipated to include state incentive programs such as Dual Enrollment (Maryland's College and Career Readiness and College Completion (CCRCC) legislation) and the Dream Act (Chapter 191 of 2011, Senate Bill 167 Public Institutions of Higher Education – Tuition Rates – Exemptions). In addition, an on-going national trend of increasing escalation of tuition costs and associated fees at four-year institutions continues to make affordability a primary issue for many students. This trend is expected to continue into the foreseeable future resulting in expanded demand for more affordable access at community colleges.

#### Changes to Teaching Pedagogy

Teaching pedagogy in the 21st Century is focused on providing students with experiential and group based learning activities that promote learning for practical application in the work environment. Teaching methodologies and pedagogy are undergoing transformation and no longer are four walls and a chalkboard sufficient to provide the instructional environment and tools that students and faculty need to be successful. Classrooms must be flexibly configured and furnished, and equipped with robust instructional technology to be adaptable to new teaching methodologies grounded in student-centered and group learning activities. Flexible spaces, both inside and outside of the formal classroom, are needed to support student collaboration, practice, and group work. In addition, more curriculums are requiring laboratory classes. These factors typically require a higher space allocation per student station in instructional spaces and more informal student study areas outside of the classroom.

### 3.4.2 Space Utilization

Building space is a valuable institutional resource and is an important asset in supporting teaching and learning, and student development and success. Enrollment management and space scheduling are significant components that impact facilities usage and master planning. Class scheduling directly impacts the utilization of space. To most efficiently use instructional space, class sizes need to be aligned with desired class size cohorts. In this regard, Maryland has established standards for classroom and class laboratory room and student station utilization for community colleges, which is used as the basis for the fall 2014 "utilization snapshot" assessment of campus.

In accordance with MHEC goals, Montgomery College would ideally schedule classrooms from Monday through Friday, during day hours of 8 a.m. to 5 p.m., at a minimum of 27 of the 45 day hours per week or at a 60% utilization rate for credit instruction. In addition, the College would fill a minimum of 66.7% of the student stations for each classroom scheduled.

TABLE 3.12 GERMANTOWN CAMPUS SPACE UTILIZATION, FALL 2015

		Room Utilization	Student Station Utilization
	Actual Fall 2013	2006 FMP Projected Fall 2023	% Change Fall 2013
<b>High Technology and Science Center (HT)</b>			
*FL 1	Lecture	50.93%	65.92%
	Labs	7.33%	94.44%
*FL 2	Lecture	48.72%	66.49%
	Labs	1.11%	83.33%
*FL 3	Lecture	29.37%	57.81%
	Labs	18.15%	61.81%
*FL 4	Lecture	43.52%	66.29%
	Labs	15.78%	63.89%
<b>Humanities and Social Sciences Building (HS)</b>			
FL 0	Lecture	61.44%	72.94%
FL 1	Lecture	43.74%	72.48%
FL 2	Lecture	50.80%	69.63%
<b>Paul Peck Academic and Innovation Building (PK)</b>			
FL 1	Lecture	43.60%	66.57%
<b>Physical Education Building (PG)</b>			
FL 1	Lecture	22.15%	64.89%
Pool	Lecture	17.78%	20.50%
<b>Science and Applied Studies Building (SA)</b>			
*FL 1	Lecture	43.28%	45.52%
	Labs	4.44%	57.61%
*FL 2	Lecture	12.84%	65.42%
	Labs	23.16%	69.13%

\*Spaces on this floor are used for both lecture and lab  
 Source: Montgomery College, Fall 2015 Schedule Data

A general campus wide analysis of average room and station utilization by academic building for the fall 2014 semester for the Campus was completed with the results summarized in Table 3.12. Observations can be made from the snapshot analysis that may identify opportunities to better utilize space and seating capacity as well as physical constraints limiting the better use of space. However, these observations and any subsequent recommendations must be developed with caution, since both quantitative and qualitative issues can affect scheduling and utilization of rooms.

A general assessment by academic building, based on fall 2014 scheduling data from the College for credit classes during day hours from Monday through Friday, yielded the following observations.

- Classrooms in most buildings have capacity to accommodate additional classes based on room utilization data;
- Laboratories in most buildings have capacity to accommodate additional classes based on room utilization data;
- The campus is meeting or exceeding the Maryland student station utilization rates for classes and class laboratories that are scheduled, with a very few exceptions;
- Some classes and class laboratories are scheduled outside of or overlap the typical scheduling matrix hours used for Monday, Wednesday and Friday and Tuesday and Thursday, creating inefficiency. In some cases, this may be unavoidable due to curriculum requirements;
- Late afternoon hours in some buildings appear to be under-scheduled on Fridays.

### Qualitative Assessment

At the heart of determining the quality of campus space, and more specifically instructional space, is an analysis of how effectively space is meeting the intended function. General observations can be made based on the age, condition, and general utilization of the building and input from campus staff as to how effectively space is being used. Observations about the quality of existing space include:

- Five of the academic and academic support buildings on the Campus were designed and constructed more than 30 years ago with the High Technology and Science Center constructed more than 20 years ago. The instructional space configuration in many of these buildings has not changed and most do not fully support the desired teaching pedagogy. Classrooms in these buildings and others are designed primarily for a lecture set up to support the “Sage on the Stage” teaching style. These spaces typically do not provide flexibility for reconfiguring furniture and using instructional technology to support group and collaborative learning;
- Most of the older academic buildings have little or no informal/social student study and learning space for use in student-to-student, student-to-faculty and/or small groups outside of the classroom or laboratory.

### 3.4.3 Campus Space Needs

The current and projected facilities space needs assessment at the Germantown Campus is generated by applying current and projected planning data related to enrollment, instructional delivery, library collections, faculty, and staff to the State of Maryland Guidelines for facilities at community colleges. The planning data referenced above and used to compute current and projected space needs is documented in Table 3.13.

TABLE 3.13 GERMANTOWN CAMPUS SPACE NEEDS ASSESSMENT PLANNING DATA, FALL 2013 AND 2023

	Actual Fall 2013	2006 FMP Projected Fall 2023	% Change Fall 2013
<b>FTDE</b>	<b>2,107</b>	<b>3,385</b>	<b>61%</b>
FTDE (inc on line)	2,469	3,968	61%
<b>Day SCH</b>	<b>37,035</b>	<b>59,520</b>	<b>61%</b>
Day WSCH-Lec	30,594	46,564	52%
Day WSCH-Lab	20,437	29,838	46%
Day WSCH	51,031	76,402	50%
<b>FTE</b>	<b>3,486</b>	<b>4,590</b>	<b>32%</b>
Credit Hours (SCH)	50,322	72,967	45%
Bound Volume Equivalents	91,048	101,974	12%
FTEF	150	176	17%
FT fac	90	104	16%
PT fac	239	286	20%
FTES	186	209	12%
FT staff	179	199	11%
PT staff	29	41	41%
Planning Head Count	1,399	2,172	55%
<b>Headcount Student (HCS)</b>	<b>7,441</b>	<b>9,423</b>	<b>27%</b>

Source: Montgomery College

Current and projected space needs are then computed for each type of space in the Campus inventory for which a guideline is available. Comparisons with the current inventory of the Campus and the one planned for the ten year planning period, given approved capital projects, are made, and surpluses or deficiencies relative to the respective space categories are identified. Table 3.14 documents the results of this analysis and breakdown by ROOM USE category.

Based on the computation of space needs in Table 3.14, the Campus is projected to need an additional 227,390 NASF of space to accommodate the planned enrollment growth. Figure 3.16 provides a graphical comparison of the space needs computed for 2013 and projected for 2023. Major deficits in academic and academic support space categories are projected in class laboratory, classroom, library and study, faculty/staff offices (especially for part time faculty) and assembly. These needs will be specifically addressed in Section 3.5.4.

In addition to the quantitative space needs identified in this section, there are also several programmatic and qualitative space issues and challenges that need to be addressed.

A primary challenge for the College will be the development of the PIC MC. This initiative is to form a synergy that benefits students, faculty, the County, and the businesses that locate within the PIC MC. There is a need for more flexible classroom and laboratory space to accommodate group based learning and collaboration. This includes providing instructional spaces with a larger student station space allocation and flexible furnishings

TABLE 3.14 GERMANTOWN CAMPUS COMPUTATION OF SPACE NEEDS, FALL 2023

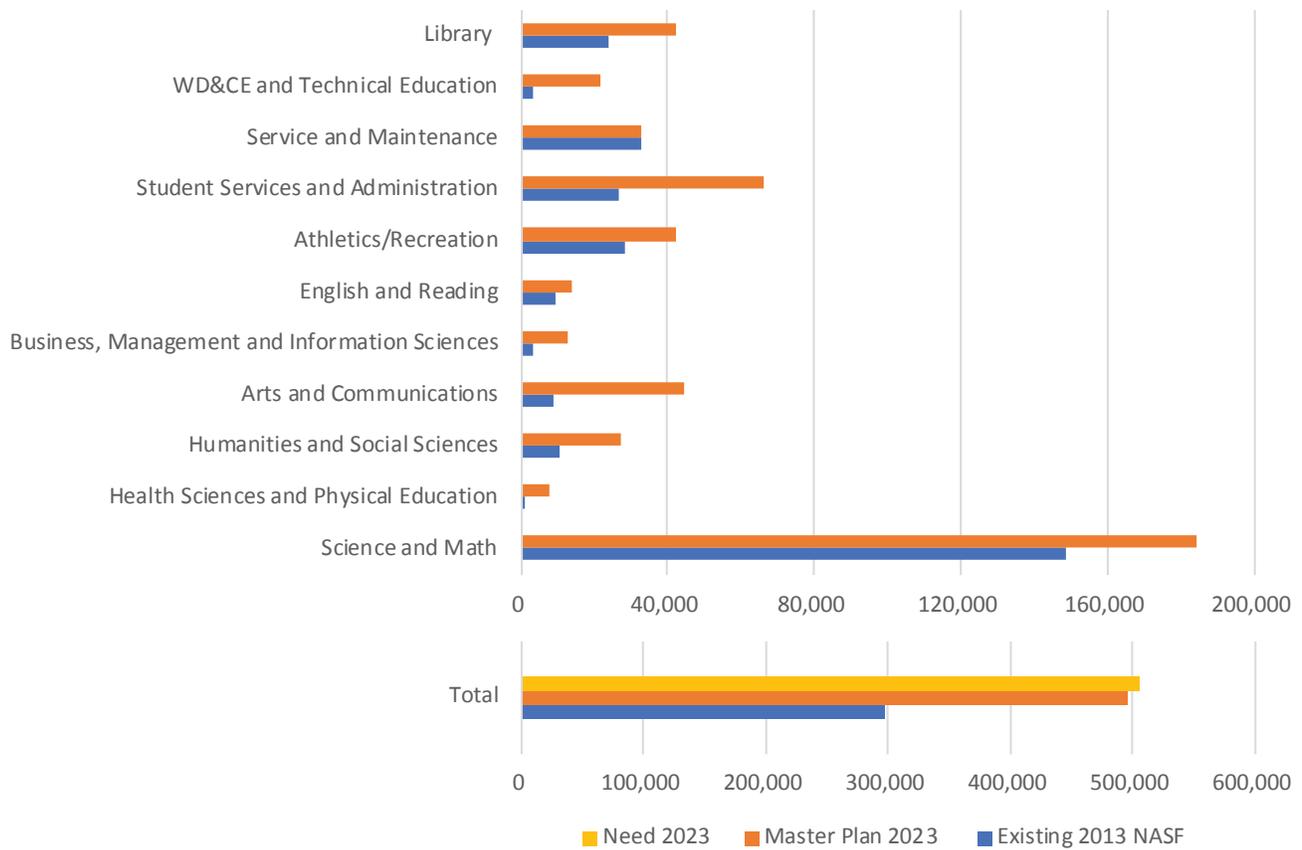
HEGIS CODE	ROOM USE CATEGORY	NEED 2023	PROJECTED INVENTORY*	SURPLUS (DEFICIT)
<b>100</b>	<b>CLASSROOM</b>	<b>55,908</b>	<b>31,536</b>	<b>(24,372)</b>
<b>200</b>	<b>LABORATORY</b>	<b>203,938</b>	<b>96,058</b>	<b>(107,880)</b>
210	Class Laboratory	188,163	86,503	(101,660)
220	Open Laboratory	15,775	9,555	(6,220)
<b>300</b>	<b>OFFICE</b>	<b>63,010</b>	<b>58,192</b>	<b>(4,818)</b>
310-350	Office/ Conf. Room	60,382	55,416	(4,966)
320	Testing/Tutoring	2,628	2,776	148
<b>400</b>	<b>STUDY</b>	<b>37,583</b>	<b>16,010</b>	<b>(21,573)</b>
410	Study	23,475	5,528	(17,947)
420-30	Stack/Study	10,077	10,035	(42)
440-55	Processing/Service	4,031	447	(3,584)
<b>500</b>	<b>SPECIAL USE</b>	<b>63,672</b>	<b>33,747</b>	<b>(29,925)</b>
520-23	Athletic	56,560	27,798	(28,762)
530	Media Production	6,112	1,578	(4,534)
580	Greenhouse	1,000	4,371	3,371
<b>600</b>	<b>GENERAL USE</b>	<b>53,318</b>	<b>26,880</b>	<b>(26,438)</b>
610	Assembly	16,512	9,983	(6,529)
620	Exhibition	2,628	0	(2,628)
630	Food Facility	17,279	6,163	(11,116)
640	Childcare	No Allowance	No Allowance	No Allowance
650	Lounge	6,171	4,001	(2,170)
660	Merchandising	2,728	1,553	(1,175)
670	Recreation Space	No Allowance	No Allowance	No Allowance
680	Meeting Room	8,000	5,180	(2,820)
<b>700</b>	<b>SUPPORT</b>	<b>26,283</b>	<b>14,850</b>	<b>(11,433)</b>
710	Data Processing	2,500	289	(2,211)
720-740	Shop/ Storage	19,395	13,177	(6,218)
750	Central Service	4,000	1,018	(2,982)
760	Chemical Storage	388	366	(22)
<b>800</b>	<b>HEALTH CARE</b>	<b>951</b>	<b>0</b>	<b>(951)</b>
<b>900</b>	<b>RESIDENTIAL</b>	<b>No Allowance</b>	<b>No Allowance</b>	<b>No Allowance</b>
<b>050-090</b>	<b>ALTERATIONS/ IND USE</b>	<b>No Allowance</b>	<b>No Allowance</b>	<b>No Allowance</b>
	<b>Total NASF:</b>	<b>504,663</b>	<b>277,273</b>	<b>(227,390)</b>

\* Projected Inventory includes existing space in 2013 plus approved development projects including those in design or construction. Source: Montgomery College

allow for multiple configurations for small and larger groupings of students to engage and interact. It is also desired that instructional spaces include robust technology and wall writing surfaces to support in-class activities and exercises.

Redevelopment of the library facilities on each campus is essential to the evolution of these resources into a true learning commons that provides additional and appropriately configured and equipped instructional spaces, individual and group study areas and computer stations. In addition, the introduction of faculty and staff technology rich “sand box” spaces, lounges and cafes and louder collaboration zones are desired for the library learning commons on each campus.

**FIGURE 3.16**  
**GERMANTOWN CAMPUS PROPOSED PROJECTS IMPACT ON PROJECTED SPACE NEEDS, FALL 2023**



## 3.5 FACILITIES MASTER PLAN

### 3.5.1 Campus Master Plan Guiding Principles

As part of the master plan process, a series of guiding principles were developed to assist in the preparation of the Facilities Master Plan which include:

#### 1. Develop new and renovated facilities to support academic and student programming in support of the College Mission.

- Support the College's goal of establishing and nurturing a unique role for the Germantown Campus in meeting the multi-level science and technology educational, economic, and work force development needs of Montgomery County;
- Provide sufficient and adequate space — classrooms, labs, offices, study, meeting rooms, and support facilities — based on existing and projected needs, so that each and every area can contribute creatively and productively every day to helping students;
- Co-locate departments and functions rationally so that students, visitors, and the College community itself benefit from the ease, energy, and excitement generated by proximity;
- Present students with the needed range of opportunities to study and learn collaboratively in supportive environments with the special assistance of faculty, librarians, counselors, and staff, and tenants of the PIC MC;
- Afford students opportunities to meet and develop socially through formal programs of leadership, recreation, and athletics, and informally in inviting indoor and outdoor spaces;
- Maximize the land resources available on the campus while retaining its unique character, quality, and setting, and yet meeting the needs of the students, faculty, staff, community members, and visitors who come to the campus every day;
- Invite students, faculty, staff, community members, and visitors to participate in the varied campus and College activities by organizing the campus—including buildings, parking, outdoor athletic facilities, and circulation for pedestrians, the disabled and elderly - to make their experience pleasant and successful;
- Support the development of the PIC MC.

#### 2. Guide future development of buildings, landscapes, pedestrian and vehicular circulation so as to physically integrate the Campus core with Holy Cross Germantown Hospital.

- Prioritize building development sites in the south area between the hospital and the science quad;
- Create strong tree lined pedestrian paths. Make the most of forest conservation, wetlands and stream areas with hiking trails connected back to the developed areas of campus;
- Retain strong, clear views between the campus core and the hospital/future development sites, and retain expansive views to Germantown from campus;

- Implement traffic calming measures on campus roads to reinforce gateways, enhance views and provide safe connections for both vehicles and pedestrians;
- Landscape should reinforce visual and pedestrian connections throughout the Campus; environment site design elements should be amenities that enhance Campus character;
- Enhance the hilltop character of the Campus;
- Site buildings carefully to preserve distant views;
- Preserve and enhance the green space, views, and pedestrian connections that radiate out from the center of the Campus;
- Site the new Student Services Center and Arts and Communications buildings to serve as new gateway facilities when entering the Campus from the north.

### 3. Concentrate academic and student services development on the Campus.

- Concentrate new campus development and locate entrances to ensure walkability and accessibility for all students and faculty;
- Site new buildings and renovate existing buildings to encourage proximity of departments and programs. Create proximity of the Science, Engineering and Math departments, cluster the Humanities, Social Sciences and Arts programs, and consolidate the Student Services functions.

### 4. Consolidate Student Services and Enhance Student Life.

- Combine Student Services in one distinctive, highly engaging building;
- Develop new outdoor spaces and student connections between the Physical Education Building, the Humanities and Social Sciences Building, the new Student Services Center and Arts and Communications buildings;
- Encourage pedestrian access to the existing storm water management pond located in the northern portion of the Campus and develop appropriate amenities to enhance this asset.

### 5. Develop the Roadway System to strengthen campus gateways and provide better access and safety.

- Roadways should not become a barrier to campus development. They should be designed with pedestrian crossings and circulation in consideration. Appropriate traffic calming measures should be employed to slow all campus traffic and discourage through-traffic;
- Allow for the proposed future connection of Observation Drive to Goldenrod Lane, with accommodation for traffic calming at the campus turnoff near the new Student Services Center.

### 6. Provide Appropriate Parking Facilities to Handle Future Parking Demands.

- Provide a new parking garage adjoining the north campus gateway to allow for development of surface parking lots and expansion;
- Incorporate planted swales that become a landscape amenity into the design of new surface parking lots;

- Encourage transit and carpool use with coordinated programs, shuttles, and improved facilities to reduce the dependence on the automobile and the need for more parking. Enhance the pedestrian facilities around the transit hub.

#### 7. Strengthen Pedestrian Connections.

- Develop pedestrian connections through existing buildings. Both the High Technology & Science Center and the future Science/Math/Health Science should have clear student circulation paths that accommodate the change in levels;
- Encourage pedestrian paths as part of a radiating system of green fingers leading from the Campus' central quadrangle particularly providing for direct connection to the Holy Cross Germantown Hospital and sites between. Also provide a strong connection to the Paul Peck Academic and Innovation Building and future adjoining building sites;
- Outdoor green and hardscape space should be enhanced in a purposeful way, with shade trees, seating and other amenities coordinated with each other.

#### 8. Enhance the Natural Systems of the Site.

- Utilize semi-pervious pavers and grassy swales where possible to reduce storm water impacts;
- Combine grass-lined swales with wooded buffers to treat run-off in an attractive and coordinated manner;
- Enhance views, increase buffers and support the existing natural systems of the site through reforestation. Treat the environmental constraints on the site as an opportunity to create a better Campus and learning environment;
- Make the most of forest conservation, wetlands and stream areas with hiking trails connected back to the developed areas of campus.

#### 9. Incorporate Sustainable Building and Site Strategies.

- Achieve the LEED silver rating to a minimum for new construction and renovations on Campus;
- Incorporate building strategies that incorporate use of recycled and local materials, green roofs to mitigate heat gain and control storm water run-off, and more efficient and intelligent lighting systems and HVAC systems;
- Incorporate strategies that include installing dark sky light fixtures, landscaping with native plants and incorporating rain gardens and landscaped swales to aid in stormwater quality control.

### 3.5.2 Response to External Planning Factors

#### College Town Plan Summary and Analysis

*In the fall of 2014, Montgomery College, led by its Department of Advancement and Community Engagement, engaged a team led by U3 Advisors to create a College Town Plan for Montgomery College. The College Town Plan makes a range of programmatic and planning recommendations, many of which align with some of the goals of this Facilities Master Plan. They include recommendations as follows:*

- *Community engagement – Facilities and resource sharing (Short-Term)*
- *Physical Improvements – Enhance public awareness of Montgomery College via coordinated signage initiatives at key intersections and gateways (Short-Term)*
- *Private sector engagement – Continue to pursue partnerships with private industry (Short to Medium-Term)*
- *Improve Pedestrian, Bike, and Transit Connections (Short, Medium and Long-Term, based on scope)*
- *Implement Germantown Campus Framework Plan (Short, Medium and Long-Term, based on scope)*
- *Pursue larger presence in East County (Medium to Long-Term, based on scope)*

Source: Montgomery College, College Town Plan

### **Pinkney Innovation Complex for Science and Technology at Montgomery College Summary and Analysis**

*In October 2014, Montgomery College published a strategic business plan for the “Partnership Program and Integrated Campus for Resident Partners.” The Germantown Campus will develop into an integrated hub of education business and entrepreneurship. It will be a place where industry partners actively interact with faculty and students to achieve academic and economic success. The vision of this plan focuses on two intertwined elements of program and place.*

#### *Strategic Plan Goals:*

- *Strengthening Education Outcomes. Use increasing company engagement and real-world business settings to inform curriculum development, to produce graduates who will succeed in their careers and serve human resources needs of the tech industries;*
- *The Partnership Program. Expand and improve management of a program to establish, sustain, and monitor outcomes of College partnerships with businesses and other organizations in the County;*
- *Mixed Community of College Programs and Tech Businesses—as Resident Partners. Develop the Germantown Campus as a mixed college and private tech business community, in which both programs of activities and design of the physical environment promote mutually productive relationships;*
- *College Space Expansion and Private Use Space Targets. Ultimately provide at least 1 M SF of College space and at least 330,000 SF of private use space in an urbanist concept plan, all in addition to the Holy Cross Germantown Hospital development;*
- *An Urban, Walkable, Place and Wise Land Use. Achieve this increased capacity, maximize land use, and make a walkable, urban campus / place by planning significant densities and (ultimately) structured parking;*
- *Market Positioning to Attract Smart People. Define and market the area (Campus plus adjacent, neighboring uses) as an epicenter of innovation in the County—a place in which highly-skilled people, including young professionals and entrepreneurs, like to live, work, learn, prosper, and enjoy a high quality of life;*
- *Creative Development and Financing Strategies. With the PIC MC Foundation serving as Development*

*Manager of private and mixed-use elements, and fully engaging the approvals of county and state authorities and sponsors, use a range of creative development and financing approaches to carry out the physical model.*

*This Conceptual Land Plan aims, over time, to transform the existing Germantown Campus into a highly-integrated network of flexible facilities that advance the following best practices in place-making:*

- *Mixed Uses: Ultimately, the Campus will be composed of buildings intended to accommodate academic programs or college offices, or Resident Partners, or a mix of both. They also may include street-level retail;*
- *Compact, Walkable Footprints: The Campus will consciously evolve with a more urban character—encouraging pedestrian links between the College and its Resident Partners, including the Holy Cross Germantown Hospital and Hughes campuses;*
- *Community-Building Infrastructure: The Campus will provide public, highly-visible, programmed event spaces that draw together on-site occupants and off-site community members to the Campus;*
- *Enhanced Mobility + Connectivity: The Campus will provide complete streets, shuttles, additional direct access to local and regional roads, and potential links to future transit corridors; along with intra-connected site strategies that tie to HCGH and Hughes, as major Resident Partner anchors;*
- *Compelling Public Spaces: The Campus will foster a rich pedestrian environment, featuring a continuous network of plazas, streetscapes and landscape amenities, incorporating nature and demonstrating sustainability—with view-sheds into surrounding forests and with new campus front doors.*

Source: Montgomery College, Partnership Program and Integrated Plan for Resident Partners: Strategic Business Plan

Both the College Town and PIC MC Plan establish a dense urban walkable framework that will transform the Germantown Campus into a hub for the Germantown Innovation District. Since the plans were published, the Campus has continued to make improvements to its road network and utility infrastructure to accommodate the development the plans envision. Some of the new infrastructure impacts the framework established by the PIC MC and College Town Plans.

Montgomery County and the Maryland National Capital Park and Planning Commission have reviewed and approved proposed plans for two road projects that may affect the framework. In the near future, the proposed County plan will connect the Campus to Frederick Road (Route 355) by way of the proposed extension of Cider Press Mill Place. The proposed new road will terminate at the traffic circle where Observation Drive and Goldenrod Lane intersect. The County also proposes that Goldenrod Lane be extended to the east to Observation Drive, and the intersection of Goldenrod Lane and Germantown Road will be eliminated. Access to the campus from the north would remain at the current location of Observation Drive and Germantown Road.

Other site constraints impact the framework established in the and College Town Plans. Both plans place some building footprints on sites where major utilities are located, roads and parking have been constructed and grades are in excess of twenty percent. All of this is costly and problematic so needs to be carefully considered. Placing buildings on some of these sites will impact the views and connections from the hilltop existing campus buildings to the Holy Cross Germantown Hospital and development sites. There are also conflicts between the plans and the forest conservation easements on the site.

FIGURE 3.17 CURRENT CAMPUS PLAN



### 3.5.3 Proposed Campus Structure and Character

The original design for the Campus focused the buildings inward, toward a grassy quadrangle, which helped to lend the small campus a sense of unity and interconnectivity. The Bioscience Education Center was the first building planned to be located beyond the original quadrangle. The size of the new Bioscience Education Center and its siting on the sloping site creates a large open space to the south of the existing campus. The location of the building is oriented as much to the new southern entrance to the Campus as to the existing Campus buildings. The buildings proposed in the 2013-2023 Facilities Master Plan have been located to reinforce pedestrian and visual connectivity on the core campus.

Following the guiding principles listed in Section 3.5.1, the 2013-2023 Facilities Master Plan proposes to physically alter the arrival experience to the Campus. It sites new buildings to serve as both a gateway to the Campus and an extension of the existing pedestrian paths. The proposed Student Services Center will guide and orient visitors to the Campus and will help create a connection to the pond to the north of the existing development. The proposed Arts and Communications Building located on the west side of Observation Drive will break up the large areas of parking and define a clear pedestrian path to the Paul Peck Academic and Innovation Building. This building will also serve as part of the northern gateway to the Campus, together with the Student Services Center, as one approaches from Germantown Road up Goldenrod Lane.

The outdoor spaces on the Germantown Campus are critical components of the functioning of the adjoining buildings. Most buildings in a campus setting open onto these landscaped spaces. Following is a list of landscape projects envisioned for the Germantown campus. Reference Figures 3.18 and 3.19.

1. Utilize landscaping, pedestrian paths and view sheds to strengthen the connection between the campus core and future PIC MC developments;
2. Line Observation Drive with street trees, pedestrian scaled lighting and sidewalks. In addition it will have one lane of parallel parking. Link the drive through extensive landscaping/ raingardens and walkway from the north gateway to the forest conservation area to the south;
3. Modify the current vehicular drop-off to allow for a more spacious pedestrian entry into the Campus. Landscape the area of the outdoor play yard vacated by the relocation of the Child Care Center;
4. Enhance the campus quadrangles with groupings of trees to help define edges, reinforce pedestrian walking paths and create more shade and amenities;
5. Reinforce the east-west pedestrian axis from the east of the High Technology and Science Center to the Paul Peck Academic and Innovation Building and adjoining development;
6. Link the existing Campus pond, a natural amenity, to the center of the Campus with a landscaped path;
7. Retain the forested buffers to the east of campus, extending ribbons of green up into the Campus with appropriate landscaping and pedestrian connections;
8. Protect critical views out from the center of Campus, especially to the south and east. Define locations for future buildings to ensure that these view corridors will be respected and protected.

### 3.5.4 Proposed Building Projects

The 2013-2023 Building Concept Plan is included as Figure 3.18 which documents the proposed location, footprint and height of proposed new buildings on Campus. The Building Concept Plan is in response to the space needs by academic grouping documented in Figure 3.16.

Below is a summary description of the proposed projects recommended in the Building Concept and Site Plan. These summary project descriptions, along with additional work proposed in the Landscape and Open Space Plan (See Figure 3.19), and recommendations from the utility and information technology infrastructure, environmental and sustainability, and circulation and parking sections will be used to develop responsive capital projects that address the identified facility and space needs through 2023. These projects will be the basis of the Facilities Master Plan.

A phasing strategy for the Facilities Master Plan has been developed to ensure an efficient and effective implementation of the proposed capital project improvements. This strategy is included in Section 3.6, Implementation of the Master Plan.

### **1. Student Services Center (54,150 NASF, 95,000 GSF)**

The Student Services Center will consolidate student support functions and resources, as well as student activities, which have traditionally been spread throughout the Campus. It will relocate the Admissions, Registration and Records; and Student Development and Student Life offices from the Social Science & Applied Studies Building and create substantially more space for study and student interaction to support a growing Campus. In addition the building will house a new larger cafeteria and bookstore.

The Student Services Center has been strategically sited to create a new gateway into the Campus. The building will be visible from the north as part of the Campus entrance from Germantown Road, affording an immediate orientation for visitors and serving as a gateway image for the College. The building will be located adjacent to the Physical Education Building which will have a new fitness addition in the future. A new outdoor plaza on the south side of the building will include an area for vehicular drop off and a transit stop, as well as a small outdoor plaza connecting this building with its neighbors.

### **2. Science and Applied Studies Building Phase 2 Addition (31,806 NASF, 55,800 GSF)**

This project is the second phase of an on-going project to renovate and expand the Science and Applied Studies Building to develop a larger Physics, Engineering and Math Center to support current and projected student enrollment growth. The Phase 2 project will involve demolition of the existing two story wing on the south and redevelop it with a bigger three story addition. The proximity to the Bioscience Education Center will allow for shared use of facilities within both buildings, such as the Mathematics and Accounting Learning Center in the Physics, Engineering & Mathematics Center and the Science Learning Center in the Bioscience Education Center.

The building is currently entered from the lower floor of the north side. There is no access on the south side of the building. To facilitate access to the Bioscience Education Center and the new quadrangle to the south, the circulation pattern will need to be reconfigured to provide for a new entrance from the second floor with egress to the south as part of the Phase 2 project. This new southern entrance provides a design opportunity to incorporate a student lounge or similar use to help activate the new quadrangle.

### **3. Library Learning Commons Building (42,120 NASF, 70,200 GSF)**

This building will act as a connecting hub between the main academic buildings and the future PIC MC buildings. It has been located to establish a new campus focal point/center between the campus core and the Holy Cross Germantown Hospital. The building is proposed to be angled and set down into the hillside so that it minimizes blocked views from the High Technology and Science Center, or the Science and Applied Studies Building and frames the view down to the proposed sites of the PIC MC and Holy Cross Germantown Hospital. It is also positioned to avoid existing utilities adjoining the loading area for the High Technology and Science Center.

The new Library Learning Commons will house the Reading and Writing Learning Center, the Social Science Learning Center and its media and academic computing functions. General purpose and library learning classrooms will also be included in this new building.

In addition to library and learning functions, the building will house a café that has good public access for future PIC MC occupants as well as students, faculty and staff. It should be a highly visible and active space that provides opportunities for informal interactions.

#### **4. Renovation of the Humanities and Social Sciences Building (51,601 NASF, 75,700 GSF)**

The library space within the Humanities and Social Studies Building will be relocated to a new Library Learning Commons building and the cafeteria will be relocated to the new Student Services Center. Subsequent to these relocations, the building will be comprehensively renovated and vacated space will be altered and converted to classroom/laboratory, office and conference space for the Humanities and English departments. The English Department Offices currently located in the Paul Peck Academic and Innovation Building will be relocated to the newly renovated space. The space vacated by this move will be reallocated for dedicated use by WD&CE.

#### **5. Parking Garage (800-1,000 spaces)**

A nine hundred space parking garage is proposed for a site near Observation Drive adjoining the proposed connection to Goldenrod. It is north of the Paul Peck Academic and Innovation Building and to the west of the new Arts and Communications Building. It will alleviate the anticipated parking space deficit and replace spaces lost to the construction of the New Student Services Center and Arts and Communications Building.

#### **6. Science / Math / Health Science (20,520 NASF, 34,200 GSF)**

This is one of three buildings of similar size facilities and will house additional space for the Biology, Chemistry, Physics, Engineering, Geosciences and Cybersecurity programs and be sited at the proposed south entrance of the campus where Observation Drive and Goldenrod Lane meet at the roundabout. The new buildings have been planned to be built in phases to provide a high degree of flexibility to accommodate space for College programs as well as elements of public-private partnerships that have yet to be defined. These partnerships may include incubator space for emerging bio-technology and life science start-ups or facility space for mature and established corporate and non-profit partners that will create a mutually beneficial synergy by being located proximate to the College and its students, faculty and academic programs. The buildings will form a physical link to the PIC MC, and frame the views from the south campus quad to Holy Cross Germantown Hospital .

#### **7. Arts and Communications Building (43,200 NASF, 72,000 GSF)**

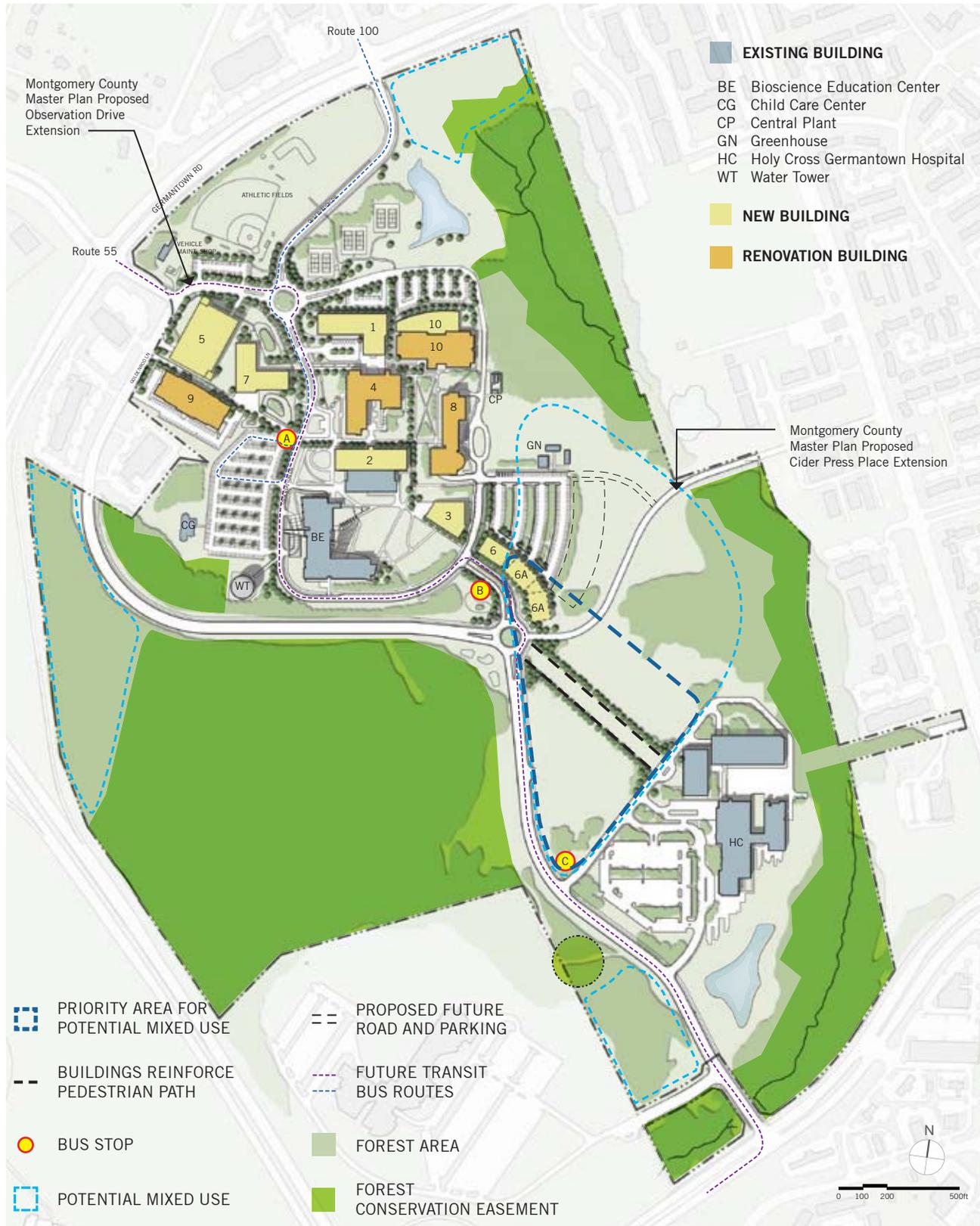
Together with the new Student Services Center the new Arts and Communications Building will help define a new north gateway to the Campus. A new outdoor plaza on the north side of the building will visually connect the building with the new Student Services Center located across Observation Drive. This new building will also serve to better connect the campus to the Paul Peck Academic and Innovation Building.

The building will provide new classrooms, laboratories, and performance and support spaces to support the growing arts and communications programs on campus. These programs will be relocated from the Humanities and Social Sciences building to allow for backfill of that space as described previously.

#### **8. Reallocation of Space with the High Technology and Science Center (45,492 NASF, 75,542 GSF)**

This building, built in the 1990s, requires targeted renovation and reallocation of space as the existing biotechnology lab and related uses have been relocated to the new Bioscience Education Center. The relocation of functions from this building will allow its reuse to focus on the Information Technology and Business departments. Building system upgrades will be required to extend useful life and accommodate reallocation and alteration of space.

**FIGURE 3.18 2013-2023 BUILDING AND SITE CONCEPT PLAN**



**1 STUDENT SERVICES CENTER**  
 FOOTPRINT - 33,400 GSF  
 TOTAL(3FL) - 95,000 GSF

**2 SCIENCE AND APPLIED STUDIES BUILDING**  
 PHASE 2  
 FOOTPRINT - 18,600 GSF  
 TOTAL(3FL) - 55,800 GSF

**3 LIBRARY LEARNING COMMONS**  
 FOOTPRINT - 17,550 GSF  
 TOTAL(4FL) - 70,200 GSF

**4 HUMANITIES AND SOCIAL SCIENCES**  
 RENOVATE FOR HUMANITIES,  
 ENGLISH READING AND  
 SOCIAL SCIENCES

**5 PARKING GARAGE**  
 TOTAL - 800~1,000 SP

**6 SCIENCE / MATH / HEALTH SCIENCE**  
 FOOTPRINT - 9,600 GSF  
 TOTAL(3FL) - 34,200 GSF  
 (6A - FUTURE MIXED USE)

**7 ARTS AND COMMUNICATIONS BUILDING**  
 FOOTPRINT - 24,000 GSF  
 TOTAL(3FL) - 72,000 GSF

**8 HIGH TECHNOLOGY AND SCIENCE CENTER**  
 RENOVATE

**9 PAUL PECK ACADEMIC AND INNOVATION BUILDING**  
 FOR WD&CE(50%) &  
 COUNTY INCUBATOR(50%)

**10 PHYSICAL ED. ADDITION**  
 FOOTPRINT - 20,900 GSF  
 TOTAL - 73,270 GSF  
 (ADDITION + RENOVATION)

**PHYSICAL EDUCATION**  
 RENOVATE

## **9. Paul Peck Academic and Innovation Building (54,052 NASF, 68,826 GSF)**

The Paul Peck Academic and Innovation Building was an existing commercial building, located adjacent to the Campus, which was purchased by the College to accommodate growing enrollments. This building is currently occupied on the first floor by occupants including English Department faculty and the Provost's Office that will be relocated to other buildings. After these relocations the first floor space (27,026 NASF, 34,413 GSF) will be renovated and reconfigured for additional general classrooms and faculty offices that are dedicated to serving the Workforce Development & Continuing Education Programs. The second floor of the building is currently leased to Montgomery County for use by its business incubator (Germantown Innovation Center – Montgomery County Department of Economic Development). Since this lease is long term this space is planned to remain in use for the business incubator of the ten year planning period.

## **10. Addition to and Renovation of the Physical Education Building (41,295 NASF, 73,270 GSF)**

This project will involve a comprehensive renovation of the existing Physical Education facility and an addition to the building. The renovation will include extensive building envelope upgrades and repairs along with modernization of building systems. The addition will provide needed programming space to address enrollment growth for the Physical Education and Health programs as well as support campus and community events and recreation spaces. The addition will be located on the north side of the existing building. It will provide an entrance to the new fitness and recreation spaces from the west.

### **3.5.5 Proposed Pedestrian and Bike Circulation**

The Facilities Master Plan proposes the extension of the existing pedestrian network to connect with the new Bioscience Education Center, the new Student Services Center, Arts and Communications Building and the Paul Peck Academic and Innovation Building to the existing Campus facilities and parking lots. These pedestrian pathways are the arteries for student circulation and are critical to the functioning of the campus. The 2013-2023 Land Use Plan addresses many of these new connections.

In addition, important connections within buildings should be maintained or strengthened to allow for circulation through these buildings. The renovation of the Humanities and Social Sciences Building and the Science & Applied Studies Building should create strong north-south circulation paths with new entrances, hallways and stairs. A new entrance on the south side of the Science and Applied Studies Building at the second floor level will provide access to the Bioscience Education Center and the BE quad.

ADA compliant curb ramps should be installed where they are currently missing. Curb ramps at intersections should be placed such that crosswalks are in the proper location. New curb ramps and a relocated crosswalk are needed at the crossing at the Lot 3 driveway and the Bioscience Education Center.

A fire hydrant poorly located in the center of the main walkway at Humanities and Social Sciences Building should be relocated.

Complete the shared use path along Goldenrod Lane to complete the connection between Middlebrook Road and Germantown Road. Create a path for bikes from Goldenrod Lane into the campus through the vicinity of Lot 1 or install bicycle parking at the eastern and western sides of the main building cluster, so that walkways through the center of campus are preserved for pedestrians.

Provide tree lined walks from the center of campus to the many campus landscape amenities such as the pond, stream and forest conservation areas. Hiking trails inside these natural areas should be developed.

### 3.5.6 Proposed Vehicular Circulation and Parking

This section presents a generalized assessment of the Facilities Master Plan from a transportation perspective. The key proposals and potential transportation impacts and needs associated with those changes are discussed and evaluated below.

#### Vehicular Access

The County's proposed master plan for highways shows Observation Drive from Germantown Road being realigned to connect to Goldenrod Lane. Observation Drive/Goldenrod Lane/Observation Drive proposes a 4-lane arterial roadway in an 80' right of way from Germantown Road to Middlebrook Road. This roadway would be expected to carry through traffic. If implemented, Germantown Campus parking should remain on the Campus side of this arterial roadway because of its greater road width and expected higher traffic volumes, so that pedestrians will not need to cross. Campus parking would continue to be served by the two-lane Observation Drive loop, which would intersect the 4-lane road at a proposed circle at the northern end of Campus and at the existing circle at the southern end. The proposed circle at the northern entrance to the Campus will reduce speeds that presently cause a safety concern.

A proposed new roadway connecting Cider Press Place at Frederick Road to Observation Drive is shown on the County's Highway Master Plan as a 2-lane minor arterial in a 70' right of way. This proposed roadway would create a fourth access point to the Campus and allow traffic to distribute to the roadways in the most efficient manner.

#### Vehicle Trip Generation Impacts

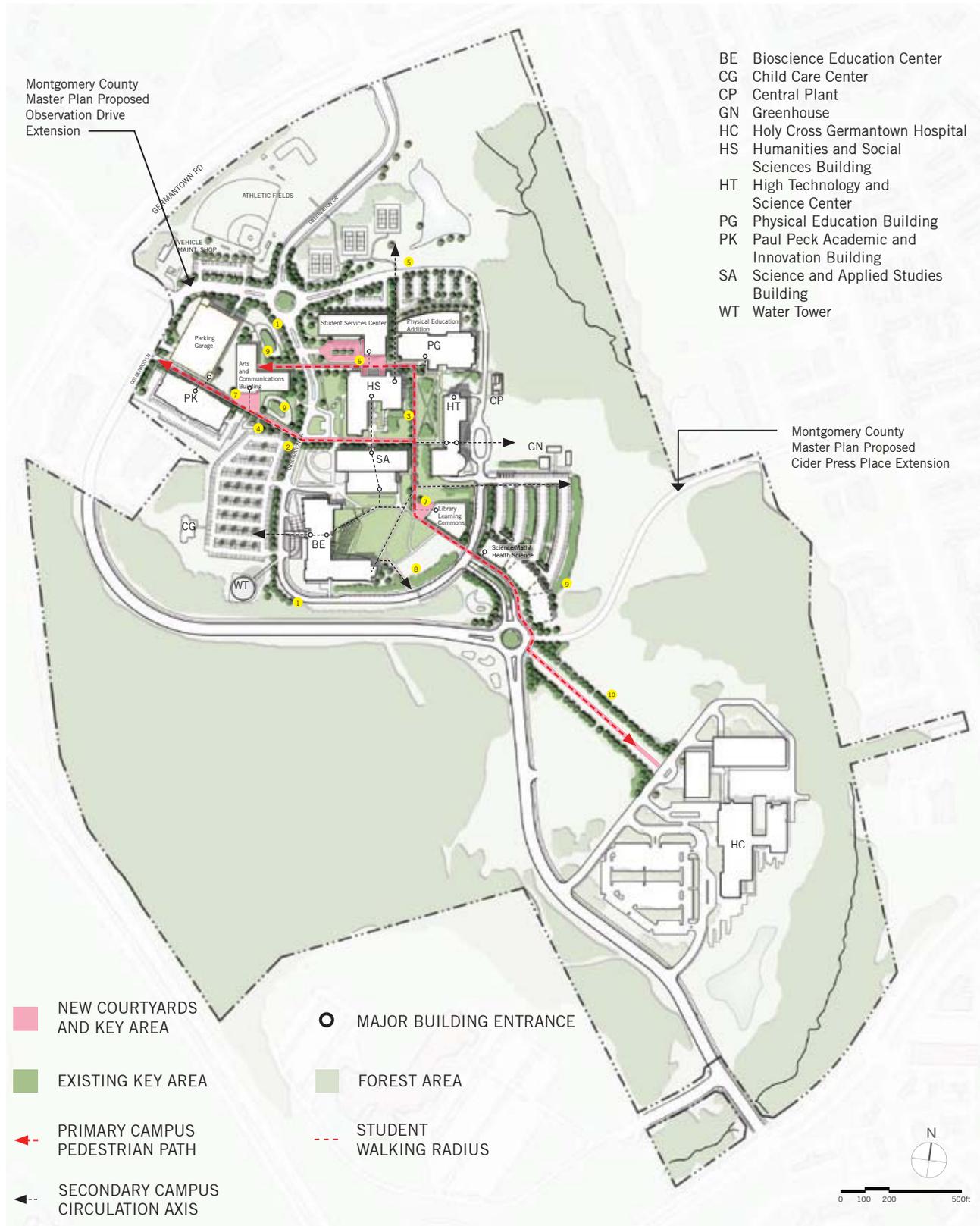
Campus growth will result in an increase in the volume of vehicular traffic. The amount of increase could be reduced by implementing Transportation Demand Management innovations that are accepted by students, faculty and staff.

Future development will require a traffic impact study under the Local Area Transportation Review and Transportation Policy Area Review Guidelines procedures established by the Maryland National Capital Park and Planning Commission. According to the most recent traffic study, the Campus entrance intersections all operate efficiently with significant reserve capacity. However, the intersections of MD 355 at Germantown Road and Middlebrook Road are nearing the critical lane volume threshold limits during the p.m. peak hour.

#### Parking

- According to MHEC standards, the parking requirement for the 2023 campus population is 3,307 spaces;
- An alternative method for calculating the 2023 parking requirement is described in section 3.2.5;
- The existing parking supply is 1,659 spaces;
- The ten year estimated change in parking supply resulting from the projects indicated in the proposed master plan includes loss of 725 existing parking spaces as follows: loss of Lot 1 (310 spaces); loss of approximately 140 spaces in Lot 2; loss of approximately 45 spaces in Lot 3; loss of approximately 60 spaces in Lot 4 from the proposed Science / Math / Health /Science buildings; and loss of approximately 170 spaces in Lot 5;

**FIGURE 3.19 2013-2023 LANDSCAPE AND OPEN SPACE PLAN**



- 1 Reinforce the north-south axis and line Observation Drive with street trees
- 2 Relocated transit stop
- 3 Enhance the quad with trees
- 4 Reinforce the East-West axis with landscaping, lighting and paving from the Paul Peck Academic and Innovation Building to the High Technology + Science Center
- 5 Link campus pond to center of campus with a landscaped path
- 6 Create a new student services center courtyard with parking, paving, service access and landscaping
- 7 Open space/ plaza in front of proposed new building entries
- 8 Retain forested buffer and extend up into campus
- 9 Extend forest up into campus. Create swales to handle stormwater
- 10 Create tree-lined pedestrian path to reinforce connections and views to hospital

- The ten year estimated change in parking supply includes up to 1,040 new parking spaces as follows: a new parking garage with 900 – 1,000 spaces north of the Paul Peck Academic and Innovation Building, and a surface lot of approximately 40 spaces off the future Observation Drive extension near the baseball field;
- The net gain in parking supply is 315 spaces;
- The resulting ten year parking supply is 1,974 spaces. Compared with the parking requirement, the deficit is 1,333 spaces per MHEC standards and 518 spaces using the alternative requirement.

### 3.5.7 Transit Recommendations

The Germantown Campus has good local bus services with Ride On Route 55 serving the Campus as frequently as every 10 minutes during peak periods. A high level of transit mode share has been achieved through the Montgomery College Transit Pass program that allows Montgomery College students to use the Ride On bus service free of charge.

Without assuming the cost and management burden of expanded transit services, Montgomery College should continue to support and promote transit commuting and carpooling. Specific recommendations applicable to the Germantown Campus are:

1. Work with the Montgomery County Department of Transportation Division of Transit Services (Ride On) to initiate an express bus route that would directly connect the Germantown Campus with the Shady Grove Metro Station.;
2. Work with the Montgomery County Department of Transportation Bus Stop Improvement Program to relocate and improve the bus stop in Lot 1 to minimize pedestrian vehicular conflicts and provide for ADA accessibility for boarding buses;
3. Considering proposed changes in the Campus roadway network, work with the Montgomery County Department of Transportation Division of Transit Services (Ride On) to revise local bus routes. This may include changing the bus stop location(s) to minimize walking distances;
4. Conduct annual staff Commuter Surveys through the Montgomery County Commuter Services program;
5. Participate in Metro's SmartBenefits Transit Benefits Program;
6. Promote transit and ridesharing options for students during fall and spring semester registration;
7. Establish and maintain a Montgomery College Ridesharing App similar to the Montgomery County Community College, Pennsylvania program that can be found at <https://www.zimride.com/mc3/>;
8. Provide priority parking for carpools and vanpools;
9. Develop specific transit wayfinding maps and signs on the Campus that guide new students, visitors and occasional transit users to available transit services. These transit wayfinding maps should show bicycle and pedestrian routes along with local and regional transit services. The transit wayfinding maps may be incorporated into existing wayfinding maps. The graphics should be updated regularly and posted in gateway locations, key buildings and on the Montgomery College website;

10. The Office of Facilities - Transportation webpage should be updated to provide transit, bicycling and carpooling maps and information that are tailored to each campus so that faculty and current and prospective students can easily identify alternative transportation services;
11. Continue the shuttle bus service as discussed in Section 3.2.6.

### 3.5.8 Major Utility Recommendations

Coordinating future utility and information technology infrastructure is an integral part of a successful planning process. The College's Utilities Master Plan was prepared to optimize the use of utility resources while minimizing potential disruptions, as well as costs. As part of this planning process, the 2012 Utilities Master Plan for the Germantown Campus was reviewed to determine the adequacy of existing systems and to ascertain the potential for future expansion. As the current Facilities Master Plan is implemented there will be a series of on-going evaluations and analyses undertaken to determine a more complete picture of the utility and information technology infrastructure impacts. It is recommended that all future projects maintain existing drainage patterns in regards to which of the two campus ponds (north and south) receive runoff from which portions of the campus.

#### Civil

Utility improvements likely required for Master Planned projects are as follows:

- 1. Student Services Center**– The 33,000+/- GSF footprint of this building would require the relocations of a small water line currently serving the tennis court area as well as a small section of 36" storm drain, this storm drain conveys a large amount of water from the campus and Goldenrod Lane to the existing stormwater pond on the north side of campus. Additionally, the construction of a building in this location would force the relocation of approximately 500 LF of an 8" WSSC public sewer main, contained within a 20-ft wide WSSC right-of-way. The sewer main currently carries flows from all four existing properties on Goldenrod Lane, the flow of sewage from other properties across the College campus requires this line remains within a right-of-way.
- 2. Library Learning Commons** – The 17,500+/- GSF footprint of this proposed building would require minimal utility relocations, if any. The conceptual layout of the building impacts a short run of 15" storm drain but this could be avoided with minor adjustments. Although not utility related, the more critical impact of this building would be a loss of an ADA accessible path leading from parking lot #4 to the east side of the Bioscience building.
- 3. Parking Garage** – The proposed 1,000+/- space parking garage would require the relocation of an existing 12" water main. This main is currently the only feed of domestic water to the campus from a WSSC public line (in Germantown Rd). The completion of the 2nd (redundant) feed originally proposed to be constructed with the Goldenrod Lane extension project greatly diminish the impacts to the campus of moving this line. The proposed garage footprint also shows impacts on the north side to existing campus electrical lines, presumably for primary electrical service, however, minor modifications to the conceptual footprint could avoid these lines. Finally, although not utility related, the garage is proposed to span the property line between the campus proper and the Paul Peck Academic and Innovation Building. The Paul Peck property would need to be legally annexed to the campus proper in order to construct this building.
- 4. Science/Math/Health Science** – The 9,600+/- GSF footprint of this building proposes major impacts to existing storm drain and stormwater management systems within and adjacent to parking Lot 4. In addition to relocating storm drain lines this project would force the removal of an existing surface sand filter stormwater facility. That SWM facility would need to be either replaced in-kind or replaced by a more currently accepted type of facility.

**5. Arts and Communications** – The 24,000+/- GSF footprint of this building would have major impacts to campus utilities. First, the 12” domestic water service previously mentioned would need to be relocated. Secondly, the also previously mentioned 8” WSSC sanitary sewer line within the WSSC right-of-way would need to be relocated. Minor storm drain lines would have to be removed or relocated. An existing SWM facility (dry pond) located on the Paul Peck Academic and Innovation Building site would be removed and another facility would need to be retrofit into the campus to maintain that treatment. Finally, as mentioned above with the parking garage, this building’s footprint also crosses property lines.

**6. Physical Education Building Addition** – The 36,000+/- GSF footprint of this building addition conceptually shows minimal impacts to existing campus utilities. There are storm drain lines which convey runoff from the existing Physical Education building that would need to be required but it appears nothing more substantial than that.

The separate Utilities Master plan for this campus completed in 2012 includes an overview of the existing Campus utility and information technology infrastructure as well as a detailed assessment of their condition and ability to meet future demand.

## **Mechanical**

The existing central chilled water and heating plants have adequate capacity to meet current demands, but will need to be expanded as future construction is implemented and existing buildings are connected to the district heating and cooling plants as they are renovated. The intent is to convert the Campus from individual boiler plants serving each building to a Campus district heating network that serves the Campus from two central heating water plants.

District heating mains will be extended to new building sites as those buildings are constructed. The new heating water plant in the Bioscience Education Center will serve as the basis of a central district heating system and a new boiler plant should be constructed in the new Student Services Center to provide additional heating water capacity to the district heating system.

The combined cooling capacity of the central cooling plants in the Bioscience Education Center and the High Technology and Science Center have adequate capacity to meet current demands, but will need to be expanded to meet future demand. District cooling mains will be extended to new building sites as those buildings are constructed. The existing central plant in the High Technology Band Science Center should be renovated and expanded to provide the additional capacity or a new plant should be constructed as part of the new Student Services Center.

The most significant remaining mechanical issue is the age of many of the HVAC systems in existing buildings, many of which were constructed in the 1970’s and 1980’s and which are reaching their expected life and rely on older technology. Mechanical systems should be replaced with more efficient systems as the buildings they serve are renovated as part of the Facilities Master Plan.

Although state law requires renovations and new buildings to achieve LEED Silver certification, new renovations should be targeted to achieve LEED Gold Certification to achieve a high level of cost effective energy efficiency. Energy benchmarks should be established for each major building compared to equivalent, energy efficient buildings to document potential savings that could be achieved with systemic renovation of HVAC and electrical systems. The results of the benchmarking effort will assist allocation of capital resources to renovation of buildings with the greatest potential for energy savings.

## Electrical

The existing Pepco feeders have adequate capacity to accommodate planned expansion. The existing 13.2 KV underground medium voltage lines will be extended in concrete encased duct-bank to serve new pad mounted step down transformers for new buildings in the future.

**TABLE 3.15 GERMANTOWN CAMPUS INFORMATION TECHNOLOGY DUCTBANK RECOMMENDATIONS**

Bldg #	Name	Ductbank	Fed From
1	Student Services	Four (4) 4" Conduits	Manhole near Humanities Bldg
3	Library Learning Commons	Four (4) 4" Conduits	Manhole between Science/Applied Studies and High Tech/Science
5	Parking Garage	Three (3) 4" Conduits	Manhole near Paul Peck Academic and Innovation Building
6	Science/Math/Health Science	Five (5) 4" Conduits	Manhole near Library Learning Commons
7	Arts/Communications	Four (4) 4" Conduits	Manhole near Paul Peck Academic and Innovation Building
10	Physical Ed Addition	N/A	Fed from Existing PE

### 3.5.9 Information Technology Recommendations

The addition of new buildings in the Masterplan will require extending the duct-bank system from the nearest available telecommunications manhole to the new building location. Four (4) new buildings are planned for the Germantown Campus, and will require site work/infrastructure to be extended as follows:

The college is currently in the process of completing a New IT Masterplan, addressing major issues such as a transition to Cloud Based services in lieu of campus data centers. If and when this transition occurs, the existing data centers will be abandoned and repurposed. Typical building telecom rooms will need to be slightly larger than in the past. Connectivity requirements between buildings will remain unchanged.

### 3.5.10 Natural Systems and Sustainability Recommendations

#### Stormwater Management (SWM)

Stormwater management activities are governed by the State of Maryland Stormwater Management Act of 2007, which requires the development of a stormwater management plan that implements Environmental Site Design (ESD) features to the "maximum extent practical" that ensure that structural best management practices are only used where absolutely necessary.

ESD is defined as using small-scale stormwater management practices, nonstructural techniques, and appropriate site planning to mimic natural hydrologic run-off characteristics and minimize the impact of land development on water resources. ESD includes conserving natural resources (drainage patterns, soil and vegetation), minimizing impervious surfaces (roads, walks, roofs) to increase infiltration and evapotranspiration, and using other non-structural practices and innovative technologies prior to consideration of structural stormwater management solutions.

In general, utilizing green roofs on future buildings and locating bioretention areas adjacent to buildings will minimize the impact on any undeveloped open space of future Campus development. Consistent with this approach, new parking lots should be designed to incorporate bioretention facilities and retrofitting existing parking lots may also be considered. Sidewalks should be designed to allow run-off to sheet flow over grass to utilize the disconnection of non-rooftop run-off whenever possible. Any future development within the Campus may also require the existing stormwater management pond to the north to be upgraded to meet current regulations.

The removal of any existing SWM facilities will need to be studied in great detail to determine an acceptable method of replacement. Most facilities on the campus were not designed and constructed with the current MDE guidelines in mind, but the replacement of these facilities may require compliance with those current standards.

### **Forestation Update**

A Forest Conservation Plan tracked under Plan MR 2009720 covering the entire Campus was approved in June 2010 by the Maryland National Capital Park and Planning Commission and includes the implementation of a forest conservation area of approximately 71 acres in conformance with the State of Maryland Forest Conservation Act. The approved forest conservation plan is required to be amended each time a new development project is undertaken on the campus. These amendments track limits of disturbance and tree clearing on the campus, and ensure no development will take place within the forest conservation easement areas.

## 3.6 IMPLEMENTATION

### 3.6.1 Projected Costs

An estimate of project costs for the design, construction and furnishing of the various projects included in the 2013-2023 Facilities Master Plan is illustrated in Table 3.16.

### 3.6.2 Project Sequencing

A phasing strategy for the Facilities Master Plan has been developed to ensure an efficient and effective implementation of the proposed capital project improvements. Project sequencing is identified in Figure 3.18 with building projects numbered according to their proposed sequence.

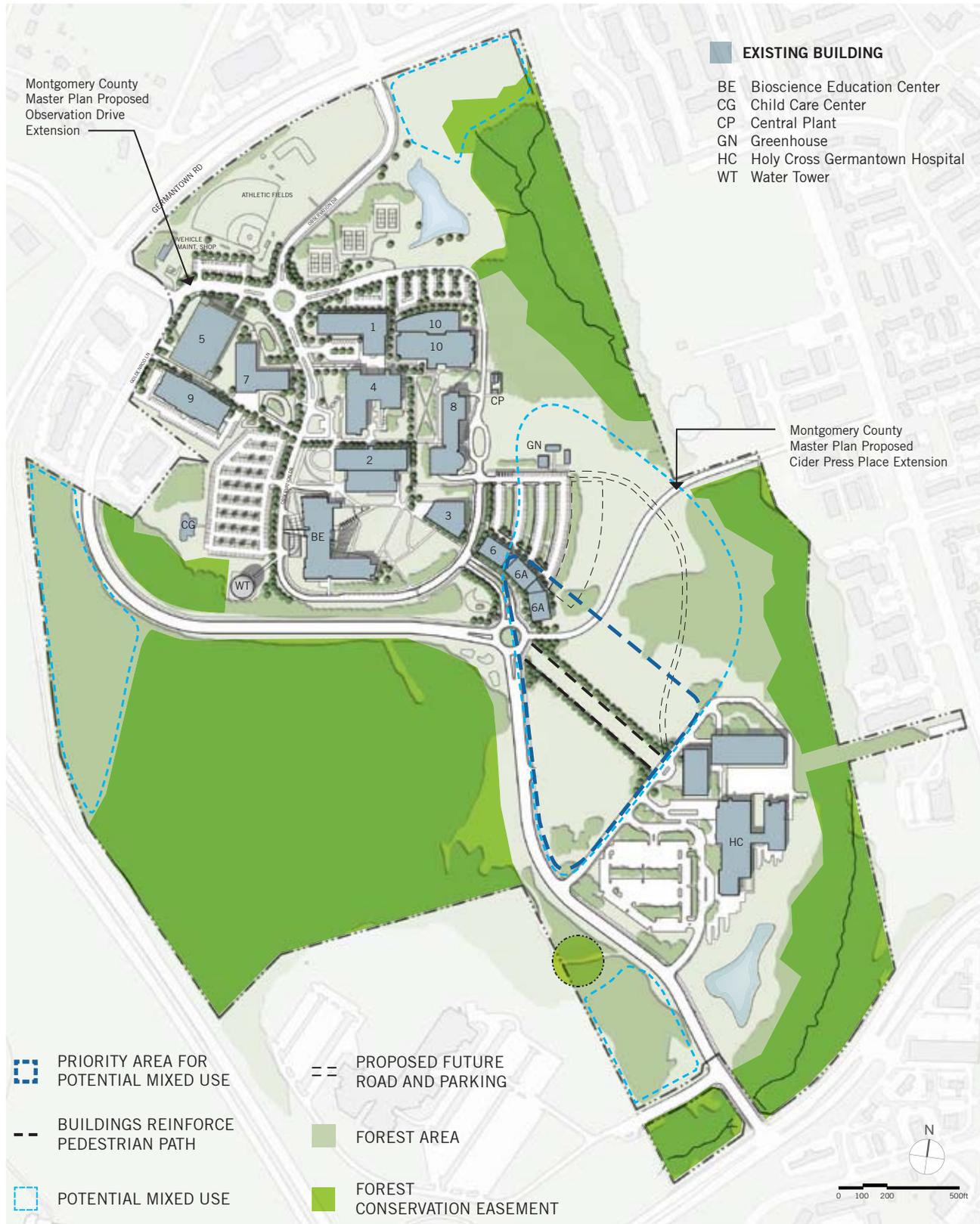
### 3.6.3 Land Use Plan 2023-33

This Facilities Master Plan proposes strategies for managing growth on this campus beyond 2023. When the building projects represented on this plan have been completed, there will be multiple parcels available for future growth of the Campus and the Pinkney Innovation Complex for Science and Technology at Montgomery College (PIC MC). Beyond 2023, the Campus plan will focus on developing and integrating the PIC MC into the original academic campus.

The strategy developed in the plan will create an integrated campus using the physical framework established in both the PIC MC and College Town Plans. The framework for future buildings and site development will provide landmark “gateway” entrances, improved vehicular and pedestrian circulation on campuses, improved outdoor and indoor quality of life space, appropriate building space for effective teaching and learning, the consolidation of Student Service and clustering of related academic functions. The framework includes an open space plan illustrating enhancements to existing quads and development of new quads, improvements to existing pedestrian paths and the creation of new ones, measures to provide a better traffic network. The specific site and building priorities for achieving the Montgomery College mission include:

- **Hilltop Hub:** The Hilltop Hub is the new south quad that is framed by the recently completed Bioscience Education Center on the west. The Hub capitalizes on the expansive views to the east and towards Holy Cross Germantown Hospital. The views will be maintained and enhanced by limiting new construction parcels to the proposed Library site and the periphery of Observation Drive.
- **South Gateway:** The South Gateway is defined by the traffic circle at the intersection of Observation Drive and Goldenrod Lane, Observation Drive on the west, Holy Cross Germantown Hospital to the south, and the forest conservation buffer to the east. The plan proposes a direct pedestrian/ view connector from the circle to Holy Cross Germantown Hospital. Though no specific building footprints have been proposed, the plan specifies that the building line fronting both sides of the connector be maintained as the priority build-to line. The elevation of the site consistently slopes toward Holy Cross Germantown Hospital, presenting the opportunity to tuck parking into the hillside and underneath the proposed building sites. The buildings on this site will be a mixture of uses including co-location of academic, student life, private research, and private enterprise functions that will strengthen the College and the County and provide students with better opportunities for learning, internships and employment. The PIC MC and College Town Plans as well as this plan recommend creating public private partnerships to fund their construction.
- **Other Sites:** There are other potential sites on the periphery of the campus that are also potential mixed use sites. The Kay property site sits between Goldenrod Lane and I-270. Another site is located on Observation Drive adjoining the Hughes Network Systems and Holy Cross Germantown Hospital with a

**FIGURE 3.20 2023-2033 LAND USE PLAN**



- 1 STUDENT SERVICES CENTER**
- 2 SCIENCE AND APPLIED STUDIES BUILDING**
- 3 LIBRARY LEARNING COMMONS**
- 4 HUMANITIES AND SOCIAL SCIENCES**
- 5 PARKING GARAGE**
- 6 SCIENCE / MATH / HEALTH SCIENCE (6A - FUTURE MIXED USE)**
- 7 ARTS AND COMMUNICATIONS BUILDING**
- 8 HIGH TECHNOLOGY AND SCIENCE CENTER**
- 9 PAUL PECK ACADEMIC AND INNOVATION BUILDING**
- 10 PHYSICAL ED. & ADDITION**

TABLE 3.16 GERMANTOWN COST ESTIMATE SUMMARY

PROJECT DESCRIPTION	TYPE	EXISTING 2013 GSF	MASTER PLAN 2023 GSF	GSF CHANGE	TOTAL COST/GSF	TOTAL COST
1. STUDENT SERVICES CENTER	NEW	0	95,000	95,000	\$446.48	\$42,415,891
2. SCIENCE AND APPLIED STUDIES BUILDING (DEMO)	DEMO	37,200	0	(37,200)	\$18.00	\$669,600
SCIENCE AND APPLIED STUDIES BUILDING (NEW)	NEW	0	55,800	55,800	\$310.00	\$17,325,677
3. LIBRARY LEARNING COMMONS	NEW	0	70,200	70,200	\$441.71	\$31,008,119
4. HUMANITIES AND SOCIAL SCIENCES BUILDING	RENO	75,700	75,700	0	\$296.65	\$22,456,254
5. PARKING GARAGE	NEW	0	324,000	324,000	\$72.05	\$23,344,848
6. SCIENCE/MATH/HEALTH SCIENCE	NEW	0	34,200	34,200	\$485.81	\$16,614,632
7. ARTS AND COMMUNICATIONS	NEW	0	72,000	72,000	\$385.77	\$27,775,354
8. HIGH TECHNOLOGY AND SCIENCE CENTER	RENO	10,000	16,600	6,600	\$339.60	\$5,637,360
9. PAUL PECK ACADEMIC AND INNOVATION BUILDING	RENO	34,413	34,413	0	\$129.51	\$4,465,965
10. PHYSICAL EDUCATION BUILDING ADDITION	NEW	0	36,500	36,500	\$377.36	\$13,773,650
PHYSICAL EDUCATION BUILDING RENOVATION	RENO	36,770	36,770	0	\$302.95	\$11,139,472
<b>TOTAL</b>						<b>\$215,948,221</b>

**FIGURE 3.21 2013-2023 AERIAL VIEW**

